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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 111

DATE: June 8th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman
E. MARTEL, Member
A. KOVEN, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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Ontario

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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council
(O.C. 2449/87) authorizing the
Environmental Assessment Board to
administer a funding program, in
connection with the environmental
assessment hearing with respect to the
Timber Management Class
Environmental Assessment, and to
distribute funds to qualified
participants.

Hearing held at the Ramada Prince Arthur
Hotel, 17 North Cumberland St., Thunder
Bay, Ontario, on Thursday, June 8th,
1989, commencing at 8:30 a.m.

VOLUME 111

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member

A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH)	RESOURCES
MS. K. MURPHY)	
MS. Y. HERSCHER)	
MR. B. CAMPBELL)	MINISTRY OF ENVIRONMENT
MS. J. SEABORN)	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN)	ASSOCIATION and ONTARIO
MS. E. CRONK)	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY)	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
MR. B.R. ARMSTRONG	ANGLERS & HUNTERS
MR. G.L. FIRMAN	
MR. D. HUNTER	NISHNAWBE-ASKI NATION and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK)	FORESTS FOR TOMORROW
MR. R. LINDGREN)	
MR. P. SANFORD)	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD)	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES)	ASSOCIATION
MR. R. EDWARDS)	NORTHERN ONTARIO TOURIST
MR. B. McKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD)	

APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.)	RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK)	MUNICIPAL COMMITTEE
MR. D. SCOTT)	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL)	GREAT LAKES FOREST
MR. S.M. MAKUCH)	
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
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MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON

(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO
TOURISM ASSOCIATION

I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>J. JOSEPH CHURCHER,</u>	
<u>EDWARD ISKRA,</u>	
<u>ROBERT L. GALLOWAY,</u>	
<u>ROBERT A. CAMPBELL,</u>	
<u>MICHAEL EDWIN BUSS,</u>	
<u>PETER PHILLIP HYNARD,</u>	
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I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
638	OFIA/OLMA Interrogatory Nos. 16, 17, 18, 19, 21 and Nishnawbe-Aski Nation Question 10 and answers thereto for Panel No. 13.	18492
639	Slides used during Mr. Nicholson's evidence-in-chief.	18493
640	Document entitled: Number of Recordable and Reportable Incidents on MNR Pesticide Operations in the Area of the Undertaking dated June 6, 1989.	18493
641	Document entitled: Guide for the Preparation of Implementation Manuals for the Aerial Application of Herbicides in Ontario.	18494
642	Prints to be used during Mr. Iskra's evidence-in-chief.	18494
643	Document entitled: Ontario Ministry of Natural Resources Investigation Report on 2,4-D Aerial Spray Incident in Blind River District on June 30, 1986.	18494
644	Document entitled: '86 Northern Ontario Operations Review Recommendations.	18498
645	Document entitled: 1987 Aerial Program Review for Northern Ontario.	18499

1 ---Upon commencing at 8:45 a.m.

2 THE CHAIRMAN: Good morning. Please be
3 seated.

4 MR. FREIDIN: Mr. Chairman, the one thing
5 I don't have is --

6 THE CHAIRMAN: You are talking about
7 witnesses?

8 MR. FREIDIN: --all the witnesses. Mr.
9 Iskra and Mr. Nicholson, I know exactly where they are.
10 I think I can finish with Mr. Churcher fairly briefly
11 and I will probably be asking you for perhaps a half an
12 hour or a 45-minute break.

13 Mr. Nicholson didn't get into until late
14 last evening and they are furiously putting together
15 the paper and the material that's required.

16 Let me just, first of all, return Mr.
17 Churcher's original. Somebody took it off the easel so
18 we wouldn't lose it.

19 THE CHAIRMAN: That is Exhibit 637.

20 MR. FREIDIN: (handed) I don't know, Mr.
21 Churcher. I usually handle originals much more
22 carefully than that.

23 You might be able to help me, Mr.
24 Chairman. I think it was the exhibit of Mr. Hynard's
25 interrogatories. Ontario Federation of Anglers &

1 Hunters No. 4 was one of them and I think I indicated
2 that -- is that right, the one with the...

3 MS. SEABORN: Exhibit 610.

4 MR. FREIDIN: Exhibit 610.

5 MR. HYNARD: Yes, that's right.

6 MR. FREIDIN: There was a reference to
7 some attachments. One of the attachments referred to
8 was the Red Lake plan which has already been filed in
9 Panel 15, but there was reference to some excerpts from
10 the timber management plan for the Walter Plonski
11 Forest and I undertook yesterday I believe to file a
12 copy of the interrogatory with the attachment. So I
13 would like to do that.

14 I also have Interrogatory No. 15 for
15 Forests for Tomorrow. Can you tell me, Ms. Seaborn,
16 was that the same exhibit?

17 MS. SEABORN: I think that is 610 as
18 well.

19 MR. FREIDIN: Okay. And again there were
20 four articles attached to that document which dealt
21 with the effect of thinning. So I have those four
22 articles as well.

23 So how would you like to deal with that,
24 Mr. Chairman?

25 THE CHAIRMAN: I guess the question is

1 whether we should make them part of 610 or give them
2 new numbers.

3 MR. FREIDIN: I think that is what we
4 should do, make them part of 610, just replace what
5 you've got for the Ontario Federation of Anglers &
6 Hunters 4 and what you have for Forests for Tomorrow
7 No. 15 with the documents that I am going to give you
8 now and perhaps we don't need any changes.

9 THE CHAIRMAN: Okay.

10 MR. FREIDIN: (handed)

11 THE CHAIRMAN: So all that is left of 610
12 then is Ministry of the Environment's Interrogatories
13 Nos. 2 and 6, is that correct, after these have been...

14 MR. FREIDIN: I am sorry, I left my
15 exhibit book upstairs.

16 THE CHAIRMAN: Okay.

17 MR. FREIDIN: I think that's probably
18 right.

19 THE CHAIRMAN: Would that be correct, Ms.
20 Seaborn?

21 MS. SEABORN: Yes. Exhibit 610 was
22 originally four interrogatories.

23 THE CHAIRMAN: Right. Yours 2 and 6,
24 OFAH No. 4 and FFT No. 15; is that correct?

25 MS. SEABORN: That's what my record

1 shows.

2 MR. CASTRILLI: Sorry, Mr. Chairman, just
3 one clarification. Where is it that Mr. Freidin is
4 proposing to move two of those pages?

5 THE CHAIRMAN: These will replace
6 effectively as part of 610 the Ontario Federation of
7 Anglers & Hunters Interrogatory No. 4 and Forests for
8 Tomorrow Interrogatory No. 15, because I take it you
9 have repeated the question -- you have repeated the
10 interrogatory and the answer.

11 MR. FREIDIN: The page with the question
12 and the answer are identical. The only thing that you
13 got added today are the attachments.

14 THE CHAIRMAN: Okay.

15 MR. CASTRILLI: I see.

16 THE CHAIRMAN: So we can just remove the
17 original questions from that exhibit and replace them
18 with these and then we should have the complete
19 exhibit.

20 MR. FREIDIN: I would ask that copies be
21 Xeroxed off it.

22 J. JOSEPH CHURCHER,
23 EDWARD ISKRA,
24 ROBERT L. GALLOWAY,
25 ROBERT A. CAMPBELL,
MICHAEL EDWIN BUSS,
PETER PHILLIP HYNARD,
CINDY STERN KRISHKA, Resumed

1
2 CONTINUED DIRECT EXAMINATION BY MR. FREIDIN:

3 Q. Now, Mr. Churcher, I understand there
4 are a number of matters you wanted to clarify from
5 yesterday, but perhaps just so the transcript is not
6 interrupted, I will finish the examination and the
7 questioning in relation to Table No. 6 which is where
8 we were yesterday and, when I finish, we will go back
9 and perhaps expand on some evidence you gave yesterday.

10 MR. CHURCHER: A. Very well.

11 Q. We were looking at Table 6 at the end
12 of yesterday which is on page 209 and we had looked at
13 a number of inconsistencies; high kills, low
14 defoliation, protection and vice versa and you
15 indicated -- made a comment on that.

16 Could you tell me: Do the
17 inconsistencies of the type that we discussed affect
18 the weight to be given to the conclusions that you have
19 drawn based on the information in the tables?

20 A. In any given year the variation that
21 occurs in a table such as Table 6 would raise a few
22 questions as to why this variation is occurring and is
23 there something we can do differently.

24 However, when you see this variation
25 repeated year after year, then that would lead one to

1 believe that this is consistent with the use of BT.
2 Overall the results are acceptable or adequate, but
3 there is this variation on an annual basis due to a
4 number of parameters, most of which are beyond our
5 control.

6 Q. And does the fact that some of those
7 parameters are beyond your control have any effect on
8 the ability to eliminate the variation?

9 A. Yes. Since the parameters are beyond
10 our control, and I am thinking mainly about the
11 parameters related to weather such as rainfall, the
12 timing, the exact precise timing of when that spray
13 window occurs and when we can spray within that spray
14 window that I referred to yesterday.

15 Because those -- we cannot control the
16 weather, therefore, we cannot control the parameters
17 and, therefore, we to a great degree are bound to be
18 subject to those parameters.

19 Q. All right. We have a number of
20 tables following Table 6, I guess 7 through 9. Could
21 you briefly explain to the Board those particular
22 tables?

23 A. Yes. Table 6, as I believe I
24 mentioned yesterday, is a summary table block-by-block,
25 the summarized results of what occurred in each block

1 in the Thunder Bay District in 1987 spruce budworm
2 spray program.

3 And, as we noted in the fourth column, it
4 indicates that in some blocks there are a number of
5 different plots. For instance, the first block Arrow
6 Lake had ten plots in it.

7 Table 7 which begins on page 210 and
8 continues on for a few pages, is the individual data
9 from each of those plots. So it's just more detailed
10 information which has been summary -- in Table 7 which
11 has been summarized in Table 6.

12 So on page 210 we start out again with
13 the Arrow Lake block balsam fir and you will see plot
14 1, plot 2, plot 3, plot 4 all the way up to plot 10.
15 And Table 7 - and then that continues throughout page
16 210 and 211.

17 Table 8 on page 212 and 213 is very
18 similar in structure, in fact it's exactly the same in
19 structure to Table 6. It too was a summary table
20 covering the blocks that were sprayed in 1987 in the
21 Nipigon District of the northcentral region and,
22 similarly, Table 9 which is on page 214 to 220, gives
23 the individual plot-by-plot data which again is
24 summarized in Table 8.

25 Q. Summarized in Table 6?

1 A. Table 8.

2 Q. I'm sorry.

3 A. I don't think there is a need to go
4 through each table or each data. The principles that
5 we talked about yesterday in Table 6 are equally
6 applicable for the other tables.

7 Q. You refer to page No. 208 of the
8 witness statement. You comment in that last paragraph
9 on the page in relation to the '88 results that, and I
10 am quoting:

11 "This year's results are quite
12 Variable ranging from good to poor."

13 However, in answer to OFIA/OLMA
14 Interrogatory No. 29(a), you also stated that these
15 results -- in relation to that comment, that:

16 "These results are not inconsistent with
17 those to be expected from BT."

18 And what did you mean by this latter
19 statement?

20 A. What was meant by that is that from
21 our experience with using BT over a number of years we
22 have begun to expect this variation and these variable
23 results for the reasons that I just gave, the
24 parameters over which we have very little control such
25 as weather.

1 In any given year we tend to see variable
2 results from use of BT. However, again overall the
3 results are adequate, but there is variation from
4 plot-to-plot or block-to-block.

5 Q. Are there any provinces other than
6 Ontario which have a similar approach to the use of
7 chemical insecticides?

8 A. The Province of Nova Scotia has used
9 only BT for some years. In fact, in some parts of Nova
10 Scotia, mainly in Cape Breton Island, they decided they
11 would he not spray for spruce budworm at all using any
12 product.

13 The result of that decision was
14 large-scale mortality in white spruce and balsam fir on
15 Cape Breton Island and extensive efforts on the forest
16 industry on in that area to salvage as much wood as
17 possible, which resulted in the largest clearcut in the
18 world.

19 They did continue though spraying spruce
20 budworm and BT on the mainland of Nova Scotia and they
21 have had a BT only policy there for some time. The
22 spruce budworm infestation has subsequently collapsed
23 in Nova Scotia and I don't believe they have had a
24 spray program there for the last two years.

25 Quebec -- Province of Quebec has also

1 moved towards a BT only policy over the last couple of
2 years as well. They were -- the Ministry of Energy and
3 Resources in Quebec was directed by the Ministry of the
4 Environment I believe to cut back -- or by the
5 Government of Quebec to cut back the use of chemical
6 and to phase it out completely by the year 1987 and to
7 us only BT after that point which the Province of
8 Quebec has done.

9 But the other two eastern provinces which
10 are involved in aerial spray programs for insect
11 control; namely, Newfoundland and New Brunswick, both
12 still use -- both products being chemical insecticide
13 and in recent years that would be the product
14 fenitrothion and as well as using the biological
15 insecticide BT as well.

16 Q. In Ontario, Mr. Churcher, how
17 frequently is consideration given to what type of
18 insecticides will be used in the spray program; that
19 is, whether it will be chemical, biological or both?

20 A. The consideration as to exactly what
21 product to use in any given year in any given spray
22 block is considered on an annual basis in the fall of
23 the year when the regional working committee determines
24 exactly what proposal they will put forward, what
25 response they are going to propose to deal with the

1 insect problem, be it spruce budworm, jack pine budworm
2 gypsy moth.

3 So when they are selecting their spray
4 blocks and deciding which areas they are going to
5 accelerate the harvest in, one of the considerations,
6 one of the questions that comes up at those committee
7 meetings is which product should we choose or which
8 product should we use to conduct our spray programs.

9 THE CHAIRMAN: But isn't that subject to
10 Ministerial directive as to whether or not you will be
11 using chemicals or BT or something?

12 MR. CHURCHER: Yes, sir, that is quite
13 correct. The regional committee makes the
14 recommendation as to what they feel would be the best
15 to use from their professional and technical opinion.
16 The final decision, as you indicated, lies with the
17 Minister or with senior management in the Ministry.

18 MR. FREIDIN: Q. Those particular -- is
19 there any policy that would restrict or limit the
20 consideration in Ontario of chemicals in any particular
21 year?

22 MR. CHURCHER: A. No. Unlike Nova
23 Scotia, which I understand has a policy that they will
24 use BT only, the Province of Ontario, Ministry of
25 Natural Resources does not have a written policy that

1 only the biological insecticide BT will be used in the
2 area of insect control. In recent years that has been
3 the practice to use only BT, but it is not a written
4 policy.

5 Q. Now, Mr. Churcher, if we could just
6 go back to yesterday for a moment, I understand that
7 you would like to make a brief comment on the evidence
8 you gave regarding the situation in New Brunswick or
9 the practice in New Brunswick of spraying for insects
10 every year?

11 A. Yes. I may have left the impression
12 yesterday that I disagreed with or disapproved of New
13 Brunswick's reaction to their -- to the spruce budworm
14 problem in that province and that was certainly not my
15 intention.

16 I feel that New Brunswick has responded
17 to the specific situation that they were faced with in
18 a manner which they felt was best suited to that
19 situation. They are faced with a -- the forest
20 industry has a fairly high dependency on balsam fair,
21 the primary host of spruce budworm and their wood
22 supply situation is such that they need each and every
23 stick that is there. So that leaves them with very
24 little choice but to protect as much as of the forest
25 as they can from natural factors such as insects or

1 fire.

2 Unfortunately, as I think I indicated
3 yesterday, that action has also has the side effect of
4 possibly prolonging the infestation or making the
5 forest that they are protecting more vulnerable to
6 successive waves or successive outbreaks of the spruce
7 budworm and that has essentially resulted in an annual
8 spray program that began in 1952 and continues until
9 today, except for one brief -- I believe they did not
10 spray in 1959 was one year when they didn't spray.

11 THE CHAIRMAN: Mr. Churcher, along that
12 line, if in fact the actions of one province will
13 prolong the infestation, obviously that will have an
14 impact on other provinces, because I take it the spruce
15 budworm can migrate between provinces and not going to
16 stop at the border?

17 MR. CHURCHER: Yes, this is true.

18 THE CHAIRMAN: Has there ever been
19 consideration given at the national level to try and
20 co-ordinate whatever the response is amongst the
21 provinces so that the overall situation can be looked
22 at across Canada, or at least across a number of
23 provinces?

24 MR. CHURCHER: As a matter of fact there
25 is a committee that was established in the late 70s or

1 early 1980 called the Eastern Spruce Budworm Council
2 which looks at that very question. Members of the
3 council include Ontario, Quebec, New Brunswick, Nova
4 Scotia, Newfoundland, the State of Maine, because they
5 were also involved in spruce budworm spray programs,
6 representatives from the U.S.D.A. Forest Service as
7 well as Forestry Canada.

8 I am one of the two representatives of
9 Ontario on that council, and it was set up to have this
10 interprovincial and, with the inclusion of Maine,
11 essentially international dialogue between the
12 jurisdictions so that messages and information could be
13 passed between.

14 It's important to keep in mind though
15 that if New Brunswick - if we accept the theory that
16 New Brunswick has essentially prolonged the infestation
17 in their province - budworm epidemics in surrounding
18 provinces and states; i.e., Maine and Nova Scotia have
19 collapsed. And, to a great extent, the Province of
20 Quebec -- the infestation in the Province of Quebec has
21 reduced considerably in the last few years as well in
22 the same way that we are seeing the epidemic collapsing
23 in Ontario.

24 MR. MARTEL: What are they using in New
25 Brunswick and what has been the reaction of the public?

1 MR. CHURCHER: At the moment New
2 Brunswick is relying on two products, BT or one of the
3 various formulations of BT that is commercially
4 available and the chemical insecticide fenitrothion.

5 Over the years the public has opposed I
6 guess or certain members of the public have opposed the
7 use of chemical insecticides in New Brunswick, however,
8 the decision has been made in New Brunswick to continue
9 using chemicals as well as BT and there has been -- and
10 in recent years in New Brunswick the amount of BT that
11 has been used has increased each year.

12 THE CHAIRMAN: Mr. Freidin, I can't
13 recall the case name, but what is the results of that
14 Nova Scotia insecticide spraying case.

15 MR. FREIDIN: That was in 245 or
16 something.

17 MR. CHURCHER: That was a case I believe
18 that dealt with herbicides.

19 THE CHAIRMAN: Oh, that was herbicides.

20 MR. CHURCHER: That was Nova Scotia
21 forest industry, Palmer.

22 MR. CASSIDY: The Palmer case.

23 THE CHAIRMAN: And that had the ultimate
24 effect of preventing it; didn't it, preventing the use
25 of that herbicide or did it go the other way? I can't

1 recall. I read it at one point.

2 MR. CHURCHER: My recollection is it went
3 the other way.

4 THE CHAIRMAN: They allowed the continued
5 use of it.

6 MR. CASSIDY: The other way, that's
7 correct. The injunction application was refused, Mr.
8 Chairman.

9 THE CHAIRMAN: Thank you.

10 MR. CHURCHER: Anyway, to finish up on
11 that point, I don't believe that Ontario is in that
12 same situation that New Brunswick is, that we are
13 not -- don't have as high reliance on balsam fir, that
14 we in many parts of the province are not in the wood
15 supply situation that New Brunswick finds itself.

16 In some areas of the province there is a
17 wood supply difficulty and those areas would be the
18 ones that we would focus our spray programs on, if
19 necessary, but by and large we have a distinct luck or
20 advantage or blessing that we can pick and choose where
21 we want to spray and where we can allow mother nature
22 to take its course.

23 And that was the main message that I was
24 trying to get across yesterday by bringing up New
25 Brunswick as an example.

1 MR. FREIDIN: Q. Now, yesterday as well
2 when you were -- you made reference to the paper by
3 Howse, H-o-w-s-e, which summarized the results of
4 programs over a five-year period I believe, chemicals
5 and biological insecticides.

6 You indicated there were four conclusions
7 that could be drawn from that report. I understand
8 that you want to speak to one of the conclusions that
9 you described yesterday?

10 A. Yes. I reviewed the paper last night
11 and I realized that I may have misinterpreted their
12 conclusions in my discussion yesterday and so I would
13 just like for the record to go back and clarify those
14 four conclusions.

15 The first item which I believe I
16 discussed, or the first conclusion that they have said
17 was that both products BT --

18 Q. Perhaps you would just wait a moment,
19 Mr. Churcher.

20 MR. FREIDIN: Mr. Chairman, I think it
21 was right after we finished going through the Table 6
22 and I asked the question along the lines as to --
23 started a series of questions, and I think the first
24 one being whether there were any results in a similar
25 format for chemical insecticides.

1 I think the question before that may have
2 been asking Mr. Churcher whether the results on Table 6
3 were good or not, and he gave a response to that.

4 THE CHAIRMAN: Just a moment.

5 MR. MARTEL: Is that the conclusions that
6 BT was more costly but been reduced somewhat because of
7 more use lately, easier to handle now than formally.

8 MR. FREIDIN: That is the area.

9 MR. MARTEL: That's the area.

10 MR. CHURCHER: That's the area.

11 THE CHAIRMAN: Okay.

12 MR. FREIDIN: Q. All right. So you
13 wanted to clarify then...

14 MR. CHURCHER: A. Just to reiterate what
15 those four conclusions were: That both products BT and
16 chemical gave similar results. As Mr. Martel pointed,
17 out the BT at the time was slightly more expensive, the
18 difference in cost is probably or has lessened in the
19 last few years.

20 In some cases -- their conclusion was
21 that in some cases BT may pose more problems in
22 handling and dealing with it and timing the exact spray
23 program but, again, as we learn more about BT through
24 our -- as we use it more, some of those differences are
25 lessened as well.

1 And the fourth conclusion that I drew in
2 my recollection of the paper yesterday - and this is
3 the one I would like to clarify today - I believe I may
4 have said yesterday that there was the perception that
5 BT was more environmentally acceptable, or words to
6 that effect.

7 After reviewing the paper last night the
8 actual conclusion of the authors was that there were
9 fewer environmental constraints imposed on the use of
10 BT than on chemicals, or fewer constraints placed on it
11 for environmental reasons.

12 Q. And could you give an example of
13 the -- or did the paper give an example of the type of
14 constraints that they were referring to?

15 A. No, they did not specifically mention
16 a constraint. But in the Ontario situation, such an
17 example would be the need in the application of buffer
18 zones when you are using the product BT versus a
19 chemical insecticide.

20 THE CHAIRMAN: Wouldn't that lead though
21 to the conclusion you made, there is fewer
22 environmental constraints placed upon it, but it's more
23 environmentally acceptable?

24 MR. CHURCHER: That would be a reasonable
25 conclusion to draw from the statement, yes.

1 MR. FREIDIN: Q. You indicated that
2 buffer zones yesterday as well was a factor to consider
3 when determining whether an area should be treated.
4 And can you provide or could you expand on the
5 applicability of buffer zones when applying BT?

6 MR. CHURCHER: A. In Ontario, the
7 guidelines that are provided by Ministry of Environment
8 as to exactly what buffer zones to apply and when to
9 apply them, indicate that when BT is used we do not
10 need to use buffer zones at all, we can spray up to the
11 edge of a waterbody, stream or lake, up to the edge of
12 human habitation, the property line.

13 However, if we are spraying chemical
14 insecticides from the air, we do need to impose a
15 buffer zone ranging from I believe 120 metres to 240
16 metres depending on exactly which area or which value
17 we are spraying close to; be it a lake, a stream or
18 human application.

19 So this then is one advantage of using
20 BT, is that you can protect all of the trees right up
21 to the shoreline, if you will.

22 Q. Now, I don't think we need put up the
23 overhead, Mr. Churcher, but I believe that we can move
24 on to the eighth message which is outlined on Exhibit
25 636A and that is that monitoring of insect populations

1 is done cooperatively with Forestry Canada. And could
2 you comment on that particular cooperation and -- well,
3 could you comment on that cooperation and describe it
4 to the Board?

5 A. Yes. The Ministry of Natural
6 Resources has a very close working relationship with
7 Forestry Canada, formally known as the Canadian
8 Forestry Service. More specifically, the group in
9 Forestry Canada at Sault Ste. Marie that we work with
10 is the Forest Insect and Disease Survey Unit, also
11 known by the acronym FIDS, F-I-D-S.

12 And they are the people that conduct many
13 of the surveys for the incidence and severity and
14 extent of the insect and disease conditions throughout
15 the province. They are the ones that, for instance,
16 produce the maps that I used as overheads at the
17 beginning of my discussion yesterday.

18 They also are the people that conduct the
19 surveys in the fall to make the predictions as to what
20 degree of infestation we can expect the following year
21 and it's information like that that Ministry relies on
22 to determine exactly what their response should be to
23 those insect outbreaks, whether it is necessary to
24 organize and conduct a spray program the following
25 year.

1 If the forecasts are such that the
2 population is about to collapse or there is no threat
3 to the insects, then obviously there is no need to
4 conduct a spray program or organize one.

5 They also provide the assessment that we
6 were talking about yesterday in Table 6 through an
7 arrangement that we have between the Ministry of
8 Natural Resources and the FIDS unit. They conduct the
9 timing of the spray program telling us -- the people in
10 the field, tell us exactly how we should begin our
11 spray program, how to time it properly, do the
12 pre-spray count, counting how many insects are running
13 up and down your forearm and, as well, go back and
14 determine the results of that spray program, which is a
15 very good relationship and a very good way of
16 conducting the program; we have a third independent
17 body essentially evaluating our performance in the
18 spray program.

19 We are not out assessing our own program,
20 Forestry Canada assesses the Ministry of Natural
21 Resources program for us.

22 Q. Mr. Churcher, just so the record is
23 clear, when you began your description of the
24 cooperation between the two bodies, I think you
25 indicated that Forestry Canada are involved in the

1 incidence and you went on. And I take it you are
2 saying incidence, not incidents; is that correct?

3 In other words, Mr. McNicholson will be
4 talking about certain incidents that occurred in spray
5 programs --

6 A. Oh, incidents, as in d-e-n-t-s.

7 Q. Is that the word you were using or
8 were you using the other word?

9 A. I was using the former word which
10 ends in the suffix d-e-n-t-s.

11 Q. All right.

12 A. No, I am sorry. My spelling is
13 incorrect.

14 Q. You told me that you weren't very
15 good at spelling bees.

16 A. How about I use a different word all
17 together?

18 Q. Well, no, no. Is it incidence,
19 i-n-c-i-d-e-n-c-e?

20 A. I believe so. I will check my
21 dictionary at the morning break.

22 Q. All right. I think that unless you
23 have something else to add, Mr. Churcher, I have no
24 other questions and it may be appropriate that we end
25 on a little spelling bee.

1 MRS. KOVEN: I just have one question--

2 MR. CHURCHER: Yes.

3 MRS. KOVEN: --and that is: Since 1984
4 has the regional working group recommended to the
5 Minister to use chemical insecticide?

6 MR. CHURCHER: Yes. In both 198 -- in
7 preparation for the 1985 spray program and in
8 preparation for the 1986 spray program the regional
9 working committees proposed both the use of chemical
10 insecticides and the biological insecticide as well.

11 MRS. KOVEN: And not since that time?

12 MR. CHURCHER: No, that's correct.

13 MRS. KOVEN: Because you wouldn't make
14 that recommendation or you know the political climate
15 isn't...

16 MR. CHURCHER: No, it was felt that -- it
17 was discussed in each of the years following that.
18 In preparation for the '87, '88 and '89 program, I
19 recall conversations at the committee meetings as to
20 what product we should use or what product we should
21 recommend should be used. Chemicals were considered,
22 but it was felt at the time that BT would provide
23 adequate results.

24 And so the recommendation that went
25 forward was that the spray programs could or should be

1 conducted using only BT.

2 MRS. KOVEN: Is it likely that the
3 regional working group will recommend in the future use
4 of some chemical insecticide?

5 MR. CHURCHER: That could very well be
6 the case. If the committee is dealing with an insect
7 that is, as I mentioned yesterday, that is not
8 susceptible to BT, then we really have no other choice.

9 If we are working in a situation where,
10 for whatever reason, we don't think BT will work as
11 well as chemical then, once again, we would make the
12 recommendation that chemical be used in this particular
13 case for these following reasons.

14 But as Mr. Chairman pointed out, the
15 final decision lies with the Minister and with senior
16 management.

17 MR. MARTEL: Well, Mr. Churcher, if you
18 look back -- hindsight is a great thing of course, but
19 if you look at back at '86 and '85 and the
20 recommendations of the committee were to use both and
21 yet there was intervention that said: No, you can't
22 use both, the results - I think I asked the question
23 yesterday, but I am putting it from a different
24 perspective today - were they better than your
25 committee had anticipated since you had recommended

1 both?

2 MR. CHURCHER: I am not sure that the
3 results were better than we anticipated. I think it
4 was more a reflection of different circumstances
5 leading up to the '87 and '88 program.

6 As far as jack pine budworm is concerned,
7 as I may have indicated yesterday, we had never sprayed
8 BT on jack pine budworm prior to 1985. In fact, it
9 hadn't been registered for use on jack pine budworm;
10 nobody had ever done it in a large-scale operational
11 program.

12 So we didn't really know what to expect
13 from BT in jack pine budworm, but two years' worth of
14 experience led us to understand and to realize that BT
15 was very effective on jack pine budworm.

16 As far as spruce budworm is concerned,
17 the situation had changed somewhat by '87,
18 populations -- while still high and still causing
19 severe defoliation, populations were on the downturn
20 and the epidemic was year by year getting smaller and
21 smaller and collapsing.

22 The areas that we were proposing to
23 protect had not been infested -- or were not in as bad
24 a condition or in the same condition -- as worse a
25 condition as some of the areas that we were proposing

1 to protect in 1985 and 1986. And so their
2 recommendations were a response more to the situation
3 we were looking at and addressing, more so than the
4 decisions made by the ministers in the previous two
5 years.

6 MR. FREIDIN: Q. Mr. Churcher, you
7 indicated earlier in your evidence that there are
8 times, places and circumstances where chemicals would
9 be required, and could you tell me in relation to the
10 pests that you are now using BT on, the pests which are
11 susceptible to BT, are there -- can you think of
12 situations or times, places and circumstances where
13 chemicals might be required in relation to those pests?

14 MR. CHURCHER: A. A good example I guess
15 would be perhaps at the beginning of an insect outbreak
16 where we have a large number of insects and that the
17 insects seem to be -- on a year-to-year basis are
18 reproducing at a great rate and they are spreading at a
19 great rate. And if we are getting again very large
20 numbers of insects running up and down the 18-inch
21 branch tip, it could very well be that the results that
22 BT can provide will not be as effective as the results
23 that can be provided in chemicals.

24 At the peak of this current outbreak
25 there were so many insects out there in some places

1 that they were feeding all of the -- eating all of the
2 current year's growth and then starting to work back on
3 previous year's growth which is not normal for an
4 insect like the spruce budworm, they tend to just eat
5 the current year's growth and leave previous year's
6 growth, previous needles that have been retained alone.

7 But there were so many insects there that
8 they had munched off all of the current year's growth,
9 they were still hungry and they were forced to begin
10 back-feeding. When you are faced in that situation
11 with that many insects BT may or may not be effective.
12 No one really knows because at that time when that
13 situation was occurring in the late 70s, BT was not
14 used on the operational scale that it is now, and we
15 probably won't really know until we get to that point
16 again in the next epidemic.

17 Q. And that decision as to whether it
18 was a time, a place or a circumstance where chemicals
19 would be required would be considered on a year-by-year
20 and situation-by-situation basis?

21 A. That's correct.

22 MR. FREIDIN: Those are my questions, Mr.
23 Chairman.

24 THE CHAIRMAN: Mr. Churcher, what do you
25 do in a situation -- I think you mentioned that the

1 spray window for BT is relatively short, and suppose
2 you made the decision in the fall, confirmed by the
3 Minister in the I guess late winter, early spring, that
4 only BTs would be used and you ended up with a two-week
5 rainfall or rain throughout the period which would be
6 the spray window and, therefore, the application of BTs
7 would be, I take it, relatively ineffective.

8 What do you do when you get into a
9 situation like that? Would you have the option of
10 going back and saying: Well, we have to resort to
11 chemicals now or would chemicals be effective at a
12 later time? I think you mentioned that the spray
13 window for chemicals is somewhat longer.

14 MR. CHURCHER: Yes. It may be slightly
15 longer, yes. If it was the point that it was raining
16 constantly or that there was rainfall, our parameters
17 for spraying, whether it is chemical or -- the weather
18 parameters for spraying, whether it's chemical
19 insecticides or biological - Mr. Nicholson will talk
20 about this more later this morning - are essentially
21 the same.

22 If it is raining or you are expecting
23 rain within six hours you don't spray, it doesn't
24 matter what product you are dealing with. So that
25 wouldn't be the case. From a logistical point of view,

1 when we are there at the spray window and we should be
2 spraying and we have bad weather, logistically it is
3 too late to order the chemical and to start spraying
4 chemical instead.

5 THE CHAIRMAN: And you can't spray
6 chemicals at a later stage in the insect's development?

7 MR. CHURCHER: No.

8 THE CHAIRMAN: It is roughly the same
9 stage of development as would be applicable with BT?

10 MR. CHURCHER: Exactly. The expanded
11 spray window, and it can be at times a very minimal
12 expansion, usually occurs at the beginning of the spray
13 window. You can start spraying chemicals a few days
14 earlier with BT because of their mode of action.

15 In the case -- the example you give of
16 the rainfall, that may very well work to our advantage
17 in that insects like humans tend not to be too active
18 outside when it is raining, they tend to huddle and
19 wait for a nice sunny day. They actively feed and are
20 more active on sunny warm days than they are on cool,
21 damp, gray, wet days.

22 So in that case the spray window would
23 probably not be two weeks, it would be extended because
24 the budworm development would be slowed and would be
25 extended. But in that situation it would be -- it

1 could be very likely that we would not end up spraying
2 all of the area that we wanted to spray. The spray
3 window would end, we would still have areas left to be
4 treated, but we would just have to end the program.

5 THE CHAIRMAN: Okay.

6 MR. FREIDIN: Mr. Chairman, could we
7 adjourn then until ten o'clock?

8 THE CHAIRMAN: Very well.

9 MR. FREIDIN: Thank you.

10 THE CHAIRMAN: Thank you.

11 ---Recess taken at 9:25 a.m.

12 ---On resuming at 10:05 a.m.

13 THE CHAIRMAN: Thank you. Mr. Nicolson,
14 I think you are the only person on the panel that has
15 not yet been sworn.

16 MR. NICHOLSON: That's correct.

17 THE CHAIRMAN: Would you mind coming
18 forward?

19 STEPHEN NICHOLSON, Sworn

20 MS. MURPHY: And we thank you for your
21 indulgence, Mr. Chairman. We have some news though,
22 Mr. Nicholson advises that he will be able to be with
23 us next week beginning on the 14th for
24 cross-examination, so we should be able to just do
25 normal cross-examination starting on the Wednesday.

1 THE CHAIRMAN: Very good. Thank you.

2 MS. MURPHY: Again, before we begin I
3 would like to file a number of documents that will be
4 referred to by Mr. Nicholson and Mr. Iskra during their
5 evidence in-chief.

6 And first is a set of interrogatories,
7 interrogatories from the Ontario Forest Industries
8 Association and Ontario Lumber Manufacturer's
9 Association Nos. 16, 17, 18, 19, 21, and from the
10 Nishnawbe-Aski Nation Question 10.

11 THE CHAIRMAN: Exhibit 638.

12 MS. MURPHY: Those are interrogatories to
13 Panel 13.

14 THE CHAIRMAN: Thank you.

15 MS. MURPHY: (handed)

16 ---EXHIBIT NO. 638: OFIA/OLMA Interrogatory Nos. 16,
17 17, 18, 19, 21 and Nishnawbe-Aski
18 Nation Question 10 and answers
thereto for Panel No. 13.

19 MR. FREIDIN: That was 638, Mr. Chairman?

20 THE CHAIRMAN: That's correct.

21 MR. FREIDIN: What was 637?

22 THE CHAIRMAN: I have as 637 the graph,
23 the sketch by Mr. Churcher.

24 MR. FREIDIN: Thank you.

25 MS. MURPHY: We have that actually. Mr.

1 Mander wasn't here so we kept that.

2 MR. FREIDIN: I handed it in.

3 MS. MURPHY: You did, okay. The next is
4 a set of overheads that will be used by Mr. Nicholson.

5 THE CHAIRMAN: That will be Exhibit 639.

6 ---EXHIBIT NO. 639: Slides used during Mr. Nicholson's
7 evidence-in-chief.

8 MS. MURPHY: The next one is a document
9 entitled: Number of Recordable and Reportable
10 Incidents on MNR Pesticide Operations in the Area of
11 the Undertaking.

12 Now, Mr. Chairman, a document was
13 provided to my friends, the same document, the original
14 was dated May 31st, the ones that my friends have. The
15 one I am giving you now is a slightly amended version
16 that will be the exhibit dated June 6th, 1989.

17 THE CHAIRMAN: Exhibit 640.

18 MS. MURPHY: (handed)

19 THE CHAIRMAN: Thank you.

20 ---EXHIBIT NO. 640: Document entitled: Number of
21 Recordable and Reportable
22 Incidents on MNR Pesticide
Operations in the Area of the
Undertaking dated June 6, 1989.

23 MS. MURPHY: The next one is a document
24 entitled: Guide for the Preparation of Implementation
25 Manuals for the Aerial Application of Herbicides in

1 Ontario. This is a new document, it is dated 1989 and
2 that has been provided to my friends. Unfortunately
3 all of my originals were sent out to my friends so I
4 will have to give you a photocopy. (handed)

5 THE CHAIRMAN: That will be Exhibit 641.

6 ---EXHIBIT NO. 641: Document entitled: Guide for the
7 Preparation of Implementation
8 Manuals for the Aerial Application
9 of Herbicides in Ontario.

9 MS. MURPHY: And next, if we could
10 reserve an exhibit number for Mr. Iskra's prints. We
11 have them somewhere but they have been mislaid for the
12 time being. I expect to have them for you today.

13 THE CHAIRMAN: All right. Exhibit 642.

14 ---EXHIBIT NO. 642: Prints to be used during Mr.
15 Iskra's evidence-in-chief.

16 MS. MURPHY: The next one is a document
17 entitled: Ontario Ministry of Natural Resources'
18 Investigation Report on 2,4-D Aerial Spray Incident in
19 Blind River District on June 30th, 1986. That report
20 was written by a Mr. Reffle, R-e-f-f-l-e, and is dated
21 August 11, 1986.

22 THE CHAIRMAN: Exhibit 643.

23 ---EXHIBIT NO. 643: Document entitled: Ontario
24 Ministry of Natural Resources'
25 Investigation Report on 2,4-D
Aerial Spray Incident in Blind
River District on June 30th, 1986.

1 MS. MURPHY: And I have two more
2 documents that I will be filing, I am just waiting to
3 have them photocopied and I can't be entirely sure of
4 the titles until I get them back. So when I get them I
5 will advise and we can mark those.

6 And one other piece of business. I
7 thought it might be easier, so that we don't interrupt
8 Mr. Nicolson, to take care of one matter. So if you
9 take Exhibit 639, that's the set of overheads -- the
10 exhibit pages should actually be lettered I would
11 think. So I am going to ask you to turn to page E.

12 THE CHAIRMAN: I get down to I; is that
13 correct?

14 MS. MURPHY: That's right.

15 THE CHAIRMAN: Thank you.

16 MS. MURPHY: On page E you will see a
17 list, each item is preceded by a year. Do you have
18 that page?

19 That is a list of policies, procedures
20 and other documentation of the Ministry of Natural
21 Resources that will be referred to by Mr. Nicolson, and
22 I thought it would probably be helpful if we just note
23 now where that documentation can be located in all of
24 the other documentation so that we don't have to
25 identify it as we go through each one.

1 So the first one is the Environmental
2 Assessment Act Exemption Order, that is Exhibit 21; the
3 next one, Licensing Requirements for Pesticide Use, the
4 current policy. It is noted as 1979, that was the
5 original, but the current policy is provided with NAN
6 Interrogatory 10 so it is in Exhibit 638.

7 The next one, Eligibility of Aerial Spray
8 Companies for Work on MNR Programs, again the current
9 policy is in Exhibit 638. The next one, Aerial
10 Application of Insecticides for Forest Management in
11 Ontario, the 1980 version is in the witness statement
12 for Panel 13 at page 173 to 174.

13 The next one, Aerial Spraying for Forest
14 Management and Operational Manual, that manual is
15 referred to in the panel statement for Panel 13. The
16 Table of Contents is at page 332 to 334. The document
17 itself has been available in the reading room and has
18 been provided to a number of parties on request. That
19 panel statement for Panel 13 is, I believe, Exhibit
20 604.

21 THE CHAIRMAN: That's right. And that
22 would be 604 probably...

23 MS. MURPHY: That page -- A, I believe.

24 THE CHAIRMAN: A, yes.

25 MS. MURPHY: The following one is also in

1 Exhibit 604A. The Table of Contents is at page 354 to
2 356 and, again, the document has been in the reading
3 room and has I believe been provided to at least one,
4 if not more, of the parties on request.

5 The next document, Controls on the
6 Operational and Experimental Use of Pesticides in
7 Forest Management is attached again to that NAN
8 interrogatory, so it is in Exhibit 638.

9 The next one in 1984, it notes Policy and
10 Procedure for Aerial Applications of Herbicide. The
11 policy -- the 1984 policy was provided, again, in the
12 NAN interrogatory to Panel 10, so it is in Exhibit 638.
13 And the current version of the procedure, if you look
14 below it in 1987, Aerial Application of Herbicide for
15 Forest Management in Ontario Revised. That document is
16 provided in the witness statement for Panel 12. So
17 that's Exhibit 603 -- that's 603A at page 340.

18 I would like to just check that, I think
19 it is in 13. Just a moment. Yes, it is in Panel 13.

20 THE CHAIRMAN: That will be 604...

21 MS. MURPHY: A.

22 THE CHAIRMAN: Thank you.

23 MS. MURPHY: That's right. Pages 340 --
24 it's the right page it was just the wrong book. 340 to
25 353.

1 If we go back up then to 1984, Posting of
2 Pesticide Treated Areas, that is provided in that NAN
3 interrogatory, Exhibit 638.

4 In 1984, again, a Policy Collection of
5 Berries from Herbicide Treated Areas. That was
6 provided in earlier interrogatories to NAN and is found
7 in Exhibit 618.

8 In 1985, Aerial Application of
9 Insecticide for Forest Management, the revised version
10 is in Exhibit 604A. The policy is at page 147 and the
11 procedure begins at page 149. And, finally, the Guide
12 for the Preparation of Implementation Manuals for the
13 Aerial Application of Herbicide. It was just filed and
14 that's Exhibit 641.

15 THE CHAIRMAN: Thank you.

16 MS. MURPHY: And I have those two last
17 documents. The first one is called '86 -- it is a
18 short version, '86 Northern Ontario Operations Review
19 Recommendations. This document is actually a set of
20 recommendations and an action plan, I think it is best
21 to describe it.

22 THE CHAIRMAN: Exhibit 644.

23 MS. MURPHY: (handed)

24 THE CHAIRMAN: Thank you.

25 ---EXHIBIT NO. 644: Document entitled: '86 Northern

Ontario Operations Review
Recommendations.

MS. MURPHY: And the last one, and I know
we are getting...

---Off the record discussion

THE CHAIRMAN: Sorry, excuse me.

MS. MURPHY: Yes. I was just saying I
know we are closing on a hundred but I am not planning
to be the lucky person. The last one is a
memorandum --

THE CHAIRMAN: We are well past a
hundred.

MS. MURPHY: Oh, I meant a thousand.
Isn't it a thousand? I don't even know when I am in
jeopardy.

This is a memorandum dated November 15th,
1987, and it covers a document referred to or entitled:
1987 Aerial Herbicide Program Review for Northern
Ontario. The author of that is a Mr. Arbuckle and it
is dated September 30th, 1987.

THE CHAIRMAN: Exhibit 645.

MS. MURPHY: (handed)

THE CHAIRMAN: Thank you.

---EXHIBIT NO. 645: Document entitled: 1987 Aerial
Herbicide Program Review for
Northern Ontario.

1

2 DIRECT EXAMINATION BY MS. MURPHY:

3 Q. Now, Mr. Stephen Nicholson is here
4 today, and I understand you are going to be speaking to
5 your paper. That's Document 2 in the panel statement
6 for Panel 13.

7 The document is entitled Aerial
8 Application of Pesticides for Forest Management
9 Operational Procedures and that document commences on
10 page 221; is that right, Mr. Nicholson.

11 MR. NICHOLSON: A. That's correct. 221
12 through to 356 inclusive.

13 Q. And Mr. Iskra will be assisting and
14 speaking to Document No. 3 in Panel 13. That document
15 commences at page 357 and it is entitled: Aerial
16 Application of Pesticides for Forest Management Aerial
17 Spray Operations, a Case Study. That's right, Mr.
18 Iskra?

19 MR. ISKRA: A. That's correct.

20 Q. Okay. Mr. Nicholson, I think you are
21 going to commence by explaining to the Board what
22 matters are going to be addressed in this evidence?

23 A. If I may just put an overhead on.
24 Thank you, Ms. Murphy.

25 For the sake of brevity I will leave this

1 overhead up. These are the five points that Mr. Iskra
2 and I will discuss. Starting with the first one: What
3 are the regulations, policies and procedures governing
4 aerial application of pesticides for forest management
5 in Ontario.

6 After discussing that, we will go to the
7 technical description of something we refer to as an
8 operating plan and describe the components of it. Then
9 we will discuss a comparison between herbicide programs
10 and insecticide programs, and then we will go into some
11 of the technical details as to how all of these
12 programs are undertaken, specifically looking at some
13 examples that Mr. Iskra has.

14 And then, as a final note, we will
15 compare aerial application procedures and policies, how
16 we go about doing it, with the use of pesticides on the
17 ground.

18 Now, before we start on discussing the
19 regulations and policies, I would like to describe a
20 little bit about the relationship between the pest and
21 the environment and the forest.

22 Q. Can you just explain, first of all,
23 why that relationship is important in order to
24 understand the policies and procedures you are going to
25 be talking about?

1 A. Okay. Well, it is important to
2 understand the significance of each of these three
3 components of this triangle and as we gain more
4 knowledge about each of these items, the stand, the
5 environment in a general sense, and the pest, whether
6 it be insects or competing vegetation, as we gain more
7 knowledge about each of those we develop rules and
8 regulation or directives concerning the
9 inter-relationship between these; how we will do our
10 work.

11 But before we can lay down any sort of
12 legislation or guidelines or directives, whatever you
13 wish to refer to them as, we have to understand how
14 each of those components behave or exist and, more
15 importantly, the relationship between the three.

16 Looking at something like at the top in
17 the yellow, the pest, this is information that Mr.
18 Churcher and Mr. Campbell have discussed. We have to
19 know where the pest is, what is the pest, is it an
20 insect, is it a disease, is it a weed and what is the
21 physiology of that pest. In terms of intervention or
22 control, when is the best time to control it. If it is
23 an insect, where is it in the canopy, on the ground,
24 whatever.

25 Looking at the green box, the stand, this

1 is information that Messrs. Hynard and Galloway have
2 discussed and this is more of the information that's
3 involved at the forest management level and that is the
4 importance of that stand, where is that stand, do we
5 need it, is it used for timber purposes, is it to be
6 considered for protection for aesthetic reasons.

7 All of these are factors that we consider
8 when we decide to embark on a program and these are all
9 factors that are considered in developing the policies
10 and procedures governing these programs.

11 And the final component of this triangle
12 is the little -- it is all inclusive, if you will, the
13 environment and we refer to that in this sense as the
14 natural environment; i.e., where this pest is, where
15 this stand is, looking at that environment and not just
16 as that stand but that stand in part of the forest.

17 We look at the human and social
18 environment when we talk about development of these
19 policies and directives, the impact of these programs
20 on communications, we look at the economics, the
21 economic environment, the cost benefit, is it cost
22 efficient to conduct these protection programs and we
23 look at the impact of the pest on the environment, the
24 impact of the pest on the stand and once we understand
25 all of these three items, then we are much better able

1 to address each of those individually, and then the
2 relationships between and put some sort of structure in
3 place to control any activities surrounding these pest
4 control activities.

5 Now, once we understand these three
6 components and the relationships between them we can
7 start on describing how the policies have been
8 developed, how MNR has determined the manner in which
9 it will conduct these programs. And what we are going
10 to go through in the next short while is areas where
11 you will see development as these policies evolved.

12 We will be looking at the best
13 technology, how that was developed; the safest
14 procedures, what we put in place to ensure that these
15 programs, when there is a decision made, are conducted
16 as safely and efficiently as possible.

17 Importantly, transferring the information
18 concerning these pests and these control activities to
19 the people conducting the activity, the field staff,
20 the managers, the people intimately involved with the
21 program in terms of training and developing rules and
22 regulations.

23 And, finally, providing information to
24 the public about these programs, how they are conducted
25 and providing the opportunity for input by the public

1 in development of these policies and ultimately the
2 execution of the programs.

3 A. The critical thing on all of these
4 items is that there is a high degree of planning that
5 takes place. We have been using pesticides for about
6 30 years in natural resources and there has always been
7 a developing planning system that has gone in place
8 with that.

9 We refer to it now as having a fairly
10 high degree of operational control when we are
11 conducting these programs we use, as I said, the best
12 technology, there is a high degree of sophistication
13 concerning aerial application. We are dealing with
14 aircraft, often sophisticated pesticides in terms of
15 how they have to be handled and used.

16 There has been some technical
17 developments to improve on that. We -- because of the
18 profile of aerial application, we spend a lot of time
19 ensuring that our own people in the public as much as
20 possible understand the intricacies of it. The
21 significance for air is obviously much greater with
22 aerial application. There is a greater concern by the
23 public and even amongst our own staff and within the
24 forest industry in general because aerial application
25 is still something that is a little alien to most

1 people, it's a little uncomfortable, they don't
2 understand the procedure that is involved. It's
3 something that occurs in remote locations and they
4 often not had the opportunity of lots of valid
5 scientific or technical information which may help
6 alleviate some of their concerns.

7 So a lot of what we've done in developing
8 these policies is trying to address those concerns, so
9 that we are doing it as safely as possible with the
10 best equipment, the best trained people that we can
11 find or train, and ensure that everybody within the
12 Ministry or the forest industry as well as outside is
13 aware of exactly what we are planning on doing.

14 One thing that is critical and worthy of
15 noting is the importance of aerial application to
16 forest management. In excess of 80 per cent of the
17 tending programs is conducted using aerial
18 applications. It's a very, very critical tool for
19 managing a forest.

20 And in many instances, such as larger
21 scale forest insect programs, there are no
22 alternatives, we can't resort to some of the
23 methodologies mentioned in previously described
24 evidence such as mechanical intervention.

25 These programs are large in remote areas,

1 we do not have road access, we are left with no option
2 but relying upon aerial application and, in those
3 cases, we have to ensure that we are doing it the best
4 way that we know how.

5 Now, as I said the best way that we know
6 how. When we conduct these programs we do them in the
7 best way as possible and a lot of the way in which we
8 conduct ourselves as people doing this work or
9 proponents of these programs is adherence to some
10 existing laws and regulations.

11 Q. And, Mr. Nicholson, just for the
12 reference of the Board, there's a longer list of
13 relevant legislation in your paper at page 286 to 287.
14 I understand you chose what you thought were the most
15 important ones for comment at this point?

16 A. Yes, there is quite a few. Even
17 looking at something like the Pest Control Products Act
18 which is federal regulation by Agriculture Canada.
19 That Act in itself interfaces or liaises with several
20 other federal agencies in the development of that Act.

21 What I have listed in my evidence, in my
22 preparation, as Ms. Murphy has said, is a variety of
23 Acts and legislation.

24 These are the four critical ones or the
25 cornerstones if you will, that everything relies on.

1 These would be the four anchors. We are looking at the
2 federal regulation, the Pest Control Products Act.

3 And what that does is ensure that these
4 products are registered and labeled for use. And that
5 they are environmentally acceptable when used properly.
6 They, importantly, will do what they are intended to do
7 when used properly, that there is a level of comfort in
8 the ability of these products to control pests as
9 described, and that all uses for the products be
10 included on the label which is a critical document and
11 that everybody abides by those rules and regulations.

12 There may be some extraordinary
13 precautions put on the labels giving extra guidance in
14 terms of use of these materials. The bottom line in
15 all of that is that that federal legislation, the Pest
16 Control Products Act ensures that there is a certain
17 number of products that are used and that they are used
18 properly by ourselves as end users.

19 The next cornerstone or even the next
20 layer above that would be provincial regulations, and
21 here in Ontario we refer to the Ontario Pesticides Act.
22 And the Ontario Pesticides Act of course abides by the
23 Pest Control Products Act, but it ensures that those
24 products registered federally are used in a manner
25 which suits the provincial perspective.

1 In other words, here in Ontario all
2 applicators must be licensed applicators, being a
3 company whose business is applying pesticides and
4 whether that's a company like mine for aerial
5 application or whatever, people working on lawns and
6 gardens, that all those companies are trained, are
7 licensed and have insurance to do this work, all of
8 their staff are licensed and trained with annual exams.

9 And looking specifically at what we are
10 talking about here, aerial application of pesticides on
11 Crown forests, that all of these programs will be
12 conducted under a permit system. In other words, any
13 time we propose one of these programs we submit a
14 package to the Ministry of Environment asking them for
15 a licence for a permit -- permission to conduct the
16 program. And that is right there in the Ontario
17 Pesticides Act and that's a critical component of all
18 our plans and all of our directives.

19 And I guess, thirdly, and equally
20 important in the Act are some comments concerning
21 handling and usage of the materials, pesticide
22 container disposal, rinsing, these sorts of things.
23 What do we do with these containers afterwards so that
24 we can be assured of no untoward environmental impact.

25 MS. MURPHY: And both the Pesticides

1 Control Products -- or rather the Pest Control Products
2 Act and the Pesticides Act, Mr. Chairman, were given to
3 you as Exhibit 606.

4 MR. NICHOLSON: There is two other
5 relevant pieces of legislation which impact on these
6 activities and, in fact, they impact on many
7 activities, but looking specifically at aerial spraying
8 the Occupational Health and Safety Act which ensures
9 that the workplace is safe, worker safety is ensured
10 through things like fire, injuries, just the general
11 good hygiene and good safety practices that an
12 employer has a responsibility to his employees.

13 And then there is -- the final one, there
14 is the Environmental Protection Act colloquially
15 referred to as the Spills Bill which ensures that we
16 will shall care when we are handling this or any
17 substance and if there is a spill, that we will take
18 proper notification procedures immediately.

19 And those are the four basic legislative
20 pieces that we follow.

21 Now, on top of those four pieces of
22 federal and provincial legislation, there is about two
23 dozen different directives which Ms. Murphy has
24 mentioned that we abide by in forest pesticide use here
25 in Ontario.

1 MS. MURPHY: Q. And you mentioned two
2 dozen. Here you have selected what I think you
3 consider to be the major ones. In addition to this,
4 there are various other manuals and other procedures?

5 MR. NICHOLSON: A. Yes, that's correct.
6 Ms. Murphy. I have picked, over the last decade, the
7 last 12 years, sort of some very critical directives,
8 some benchmark things that we have put in place with
9 Natural Resources and, as you can see, there is a
10 chronology starting here from 1977 right up through to
11 this year 1989 and there is a dozen or so here.

12 We can fill in the gaps inbetween the
13 years with other directives, bulletins, other
14 information, training manuals, things that we have put
15 together.

16 I guess starting at this, and I will just
17 go through sort of a brief chronology as to how we
18 develop these techniques, how we do our work in forest
19 management.

20 The first piece of legislation would be
21 the Environmental Assessment Act, the Exemption Order
22 in 1977 which basically provided for public notice and
23 that has been in place for 12 years and we have abided
24 by that accordingly.

25 In 1977, the same year, we started within

1 the Pest Control Section at that time in the Ministry
2 of Natural Resources we started to compile centralized
3 records on pesticide usage. The Ministry being a
4 decentralized organization had lots of information at a
5 district level but it was difficult to access if
6 someone asked a question like: How much of this
7 product was used or how large of an area was treated.

8 So we started an annual inventory process
9 in 1977 and it's been ongoing ever since. That
10 information is compiled and then submitted -- it's used
11 for internal purposes obviously and then it has been
12 submitted to Ministry of Environment on an annual basis
13 ever since then.

14 Q. And you have referred to that as the
15 pesticide usage reporting system?

16 A. Yes, that's correct. And during this
17 time, about the same time frame 1977-1978, we started a
18 fairly extensive staff training program. According to
19 the Ontario Pesticides Act, all staff must be trained
20 and licensed. So we took staff from each and every
21 district and started a training and licensing program
22 so that these people would be trained.

23 All of the pilots and contractors coming
24 in are trained. We felt that it would behoove us to
25 have our own people equally trained to handle these

1 materials. So we started that, as I said, in 1977,
2 went around the province and it's been an on-going
3 process since then on an as need be basis.

4 The forest industry has been involved,
5 we've had participants from other provinces, from
6 Manitoba through to Newfoundland, conservation
7 authorities, forest industry, a variety of different
8 users of pesticides involved in forestry have been
9 involved in that. I think there has been in excess of
10 about 800 people who are now trained and licensed
11 within Ontario.

12 During this time frame we are also
13 looking at - while we are, if you will, pointing
14 ourselves and training ourselves - we noticed a gap if
15 you will in the aerial application industry. With the
16 Ontario Pesticide Act coming into place, with the -- in
17 short terms, the relatively new legislation, we noticed
18 that a lot of the operators weren't familiar with it
19 and they were getting confused as to what to suspect on
20 forestry spraying programs, so we started off on an
21 informal basis on a workshop basis, and then it became
22 a mandatory procedure that anybody wishing to work on
23 Crown land for the Ministry of Natural Resources would
24 have to attend an annual workshop or training program
25 and then we developed an eligibility list for hiring

1 contractors.

2 So that way we could ensure that we as
3 billpayers were having the work done in the manner
4 which we felt was acceptable and, again, that's an
5 ongoing process.

6 In the late 70s, early 80s we started on
7 some small to moderate scale spruce budworm spraying
8 programs in the northern region and the northcentral
9 region.

10 Q. Just before you go there. I just
11 noted both with respect to the item in 1979 licensing
12 requirements for pesticide use, that was for the
13 Ministry staff, and 1979 eligibility of aerial spray
14 companies for work on the programs, do I understand
15 that the informal process of training and so forth took
16 place prior to the designing of a policy?

17 A. Yes. We had started these informal
18 training programs or we didn't really even refer to
19 them as training programs but just sort of sharing
20 information that, by the way, this is the way we would
21 like our work done and then we put it into paper, if
22 you will, and we put it in place, in practice as a
23 policy and a procedure that said: Thou shalt do it
24 this way.

25 But pretty well for all of these, as we

1 go through them, they were put in place as a formal
2 document or as a formal procedure after we had already
3 been doing it as a manner of good business and it was
4 just necessary to identify that as a directive and say:
5 This is how thou shalt do it.

6 So as we took on some of these aerial
7 spraying programs in the early 80s, at that time we
8 used a variety of chemical and biological insecticides
9 and we developed a policy and a procedure initially for
10 spruce budworm and then more generically for
11 insecticides.

12 We have always been very forward in
13 promoting the use of biological insecticides and I
14 identified that I guess in the first policy in 1979 or
15 1980 that where available and operationally sufficient,
16 that we would use those biological materials as a first
17 choice.

18 During the same time frame we started in
19 1979 with the programs in the northern region with our
20 communication procedures, open houses, media briefings,
21 bringing the press out to the site, dealing with the
22 public, telling them how we were going to do this work
23 asking them for input and comments. We had a planning
24 procedure that Mr. Churcher has described for
25 opportunity for input from these other agencies and

1 those were even in advance of actually formalizing them
2 them in a document, it was something that we had been
3 doing for a few years prior to writing it up.

4 The critical - I guess I am just down to
5 about the fourth point here - in 1980 a critical --
6 something of importance to us in the way in which we
7 did the work was signing of the first FMAs and with the
8 onset of the FMAs that put a lot of the onus, a lot of
9 responsibilities back on forest industry for conducting
10 these programs.

11 The forest industry at that point in time
12 had not had any hands-on involvement in these
13 activities and we made it a very high priority to train
14 forest industry staff and give them the same benefit of
15 the training, the licensing and examination that our
16 own staff had did.

17 So we sort of changed our orientation and
18 looked a lot at herbicide programs in the early 80s and
19 training staff primarily from forest industry because
20 they would have the largest programs. And as we saw
21 the FMA programs increasing over time, over the last
22 decade, a lot of the training and communication effort
23 has gone into the forest industry to bring their people
24 up to the same level of expertise that was available at
25 that time in the Ministry of Natural Resources.

1 We developed an aerial spraying manual
2 which has been filed today.

3 Q. And that is the one noted there, 1981
4 Aerial Spraying for Forest Management, an Operational
5 Manual. I understand you are one of the authors of
6 that document, Mr. Nicholson?

7 A. Yes. This was a document that was
8 put together at the pest control section, pest
9 management section by Drs. Carol Campbell and myself
10 and at that time we looked and there was lots of
11 different ways of doing things, but there was nothing
12 under one cover that somebody could pick up and say:
13 This is how you shall run a spraying program.

14 And we put that together, as I said, in
15 79-80, formally in '81 and it's a comprehensive
16 document that covers everything, tendering and a
17 variety of things, but it's well used. I found it
18 other jurisdictions being used as a good document to go
19 by.

20 In this manual and in the directives that
21 were being prepared at that time, we always had an
22 emphasis on aspects like communication posting,
23 signing, not always was it as formal as it is now,
24 after these large-scale programs in the last few years,
25 but what we had initiated in the late 70s early 80s

1 became standard business practice and then became
2 formalized.

3 There are sections in here makes
4 reference to -- cross-references if you will to the
5 different documents and different directives on how to
6 conduct these programs, how to notify people, when you
7 should do it. We have developed that it and refined it
8 based on experiences since the publication of this
9 manual, but it still remains as sort of a cornerstone
10 or as a building block for most of the programs
11 conducted either by ourselves; i.e., Natural Resources
12 or the forest industry.

13 There is variety of comparable manuals
14 that have been prepared, but the technical content
15 remains the same.

16 Q. Mr. Nicholson, you refer to MNR as
17 ourselves from time to time. You aren't with MNR any
18 more. Just so that we don't get too confused about
19 that --

20 A. You will have to bear with me, I may
21 run from between we and they from time to time and I am
22 here speaking on behalf of we as of two years ago, but
23 if I run into trouble it will be they. So bear with me
24 on that, if I use that term somewhat loosely.

25 Q. We have some friends here, Mr.

1 Nicholson.

2 A. And I may not have any when I'm done.

3 Early 80s, carry on through this. As we
4 started to put together these policies and procedures
5 we said to people: Okay, if you are going to do
6 spraying you are going to do it in accordance with the
7 manual. That is your bible, that's how you are going
8 to do your spraying. You have to tell people how
9 you're going to do it.

10 So we put together something called a
11 project description. Okay, what is a project
12 description; describes the project. People were having
13 a difficult time - it's a big province - we even gave
14 them a manual or a guide in terms of preparing a
15 project description, so they could cover all of these
16 things off. And that has been used by MNR and by FMAs
17 to organize and sort of orchestrate their plans and how
18 they are going to prepare that and use that internally
19 and externally for review and comment.

20 Q. And that's the item noted there under
21 1982 Aerial Spraying for Forest Management Sample
22 Project Descriptions?

23 A. Yes, yes. Another document from pest
24 control.

25 Q. That's right. Are you an author of

1 that document as well?

2 A. Again, yes. Another critical -- hmm,
3 okay. During this time frame we are looking, as I
4 mentioned earlier, at development of things like
5 biological alternatives like BT, we're also taking a
6 look at some R&D work, if you will, on herbicides. And
7 there was no real co-ordinated effort at that time on
8 that. There was people taking a look at different
9 materials for different reasons.

10 So we put together a policy, a directive
11 on the control of that. In other words, if you are
12 going to be using these materials, whether it be for
13 operational or experimental program, these are the
14 protocols that you have to follow. And that we put in
15 place in 1984, and identified who should be doing these
16 programs and just sort of a procedural document that
17 covered all, not in detail, but covered all pesticide
18 usages in the province for forestry.

19 1984 we revised and re-issued the policy
20 and procedures for the aerial application of
21 herbicides. As I said, with the signing of the FMAs
22 and the increase in herbicide programs, it was felt
23 that there was a need for further direction there.
24 Although this was initially designed for MNR, it was
25 made a little more generic and updated based on new

1 technology, new management approaches that we had so it
2 would be a little more applicable to the forest
3 industry.

4 MR. MURPHY: And you will recall I have
5 given you the exhibit numbers and locations for these
6 documents, so that you don't have to go and look at all
7 of them at this point in time, Mr. Chairman.

8 MR. NICHOLSON: Something that we
9 actually established as a formal document was posting
10 of pesticide treated areas and even back in 1978-79 we
11 had been telling people either through the media or
12 verbally face-to-face, this is where the spraying will
13 be.

14 And we had some -- in some areas, they
15 started by putting signs up at local access points and
16 that, and then we made that a rule, a regulation that
17 said that we shall do this in all blocks. And so we
18 started that to inform people that these are the areas
19 in which we will be treating, we will be spraying, and
20 we put up a distinctive sign which is now used by
21 ourselves and forest industry across the province.

22 MS. MURPHY: Q. And I understand we will
23 be seeing one of those signs in Mr. Iskra's pictures?

24 MR. NICHOLSON: A. Many of these things
25 that I have discussed Mr. Iskra will be providing the

1 actual proof, if you will.

2 Now, during the same time frame in terms
3 of getting this information out to the public and
4 letting them know where these areas are treated, one of
5 the reasons for this was many people go into these
6 areas, especially cut-overs, for picking berries. So
7 this was a concern of ours is: What is the
8 significance of berry picking in these areas. So we --
9 when I say we, it's the Royal we again - Dr. Campbell
10 conducted a study on the impact of herbicides on
11 berries and I think predominantly berries, perhaps
12 mushrooms in these cut-overs.

13 That became a good document for us to
14 use. We were able to tell people: These are the areas
15 that we are spraying, here's our project description,
16 this is our plan, here's the signs, so that if you
17 decide to go berry picking this is an area that will be
18 sprayed, give them the dates, the material, it's going
19 to be 2,4-D or glyphosate (Vision) and then, if they
20 still had any concerns about the material they could --
21 we had some information available on the significance
22 of the herbicide on the berries.

23 Q. Yes. And, Mr. Galloway, Mr.
24 Nicholson was just referring to that policy or that
25 bulletin in fact I believe it is that gives some

1 information about berry picking, and you had made a
2 comment at one time I recall about the use of that
3 document. Is that a document that you are familiar
4 with and use on occasion?

5 MR. GALLOWAY: A. Yes, it is. It's a
6 very common to get calls, as Mr. Nicholson said, when
7 you have identified the project areas and we would use
8 that regularly to send out to people or discuss over
9 the telephone as a background document to provide them
10 with information.

11 MR. NICHOLSON: A. Trudging along we are
12 up to the mid-80s, recent history now. 1984-1985.

13 In 1985 the Ministry of Natural Resources
14 undertook some fairly major -- some significantly
15 larger aerial spraying programs, Mr. Churcher has
16 described them prior to my arrival, and these larger
17 programs had a significant impact on the Ministry of
18 Natural Resources and how we go about doing our
19 activities like this.

20 We took a look at the existing procedural
21 documents that we had, the directives for aerial
22 application of insecticides and prior to these larger
23 programs they had only -- they had been put in place in
24 originally a specific sense for spruce budworm and then
25 generically for insecticides, however, they had to be

1 revised or rethought in terms of: Okay, if we are
2 going to have a larger program, what do we have to do.
3 So we look at that, revised them, made them more
4 applicable to these larger scale programs.

5 The content was basically the same, but
6 in terms of managing these programs, how we decide
7 which areas are treated, who all is involved in those
8 decisions, all of that was and evolving process for the
9 first five years in the 1980s but in 1985 when we
10 understood these larger programs, again we had to
11 identify that and put it down in some sort of a
12 framework for our people to follow.

13 Now, during this time frame '85, '86, '87
14 there was hundreds of thousands of hectares treated
15 total for gypsy moth, jack pine and spruce budworm. At
16 the same time there was significant herbicide programs.
17 So we looked at what we had put in place in terms of
18 the planning and the procedures, the directives for
19 aerial insecticide programs, and took some of the
20 experiences that came out of these larger scale
21 programs, some of the items that came out of training
22 programs, reviews and reports that Ms. Murphy had
23 mentioned earlier, and incorporated that; refed it, if
24 you would, back into the herbicide policy to bring it
25 up to date.

1 Q. And just before you go on, you are
2 talking about which reviews in particular?

3 A. Okay. The reviews I am referring to
4 would be items such as the Reffle Report which you had
5 mentioned which was a review by ourselves - we, Natural
6 Resources - Environment, Health and Labour and that
7 review authored by Ron Reffle stemmed out of an
8 incident where some tree planters in the Blind River
9 District were exposed to some low levels of 2,4-D from
10 an adjacent spraying program.

11 MS. MURPHY: And that report, Mr.
12 Chairman, is filed with you as Exhibit 643 and for the
13 record, the recommendation to that report can be found
14 on - I don't know how you cite these - little (ii) to
15 (iv) -- 2 to 4.

16 MR. NICHOLSON: The basic --

17 MS. MURPHY: Q. And the other two?

18 MR. NICHOLSON: A. Okay. The other two
19 would be the 1986 Operational Review referred to as the
20 Arbuckle Report and, again in 1987, a follow-up
21 operational review authored again by Mr. Arbuckle.

22 Q. Okay. Let's just note for the record
23 which documents you are referring to?

24 A. Okay.

25 Q. The first one -- both of them tend to

1 be called the Arbuckle Reports, so I think just for the
2 purposes of the record, what you have is Exhibit 644,
3 that was the summary of recommendations in an action
4 plan from 1986, and then a second review also authored
5 by Mr. Arbuckle in 1987 and that is Exhibit 645, and
6 you can find the recommendations in those documents.

7 A. The significance of both of those
8 three views came down to something as simple as a list
9 of recommendations, such as on the Reffle Report what
10 we shall do in these sorts of -- if this does occur,
11 establish a formal link with Health and Labour and
12 Environment.

13 This gave rise to what we refer to as the
14 Inter-Ministerial Committee, something we have been
15 doing but never on a formal basis just by the way for
16 your information.

17 The other two reviews, the one in 1986
18 referred to as the Arbuckle Report was reviewing MNR
19 programs only. Basically the rationale for that, in
20 1986 we had a very large program, probably about 50
21 different spraying programs occurring in the province,
22 a lot of inexperienced people were trained quickly,
23 brought up to speed, and put on site-learning programs.
24 And we felt it would be worthwhile to go back and
25 review all the programs and see how well they were

1 conducted and, importantly, how well the conduct of
2 those programs related to the planning.

3 Again, the end result of that was a
4 series of recommendations which were fed back into
5 planning committees or directives modified, refined for
6 future programs.

7 In 1987 the operational review that we
8 referred to was a little broader in its mandate. One
9 of the things that occurred in 1986 is we were looking
10 at MNR programs but, at the same time, forest industry
11 was conducting more and more programs on their own, not
12 that we were concerned about that, but between forest
13 industry and ourselves we felt that we had some -- in
14 some aspects, we had more expertise and we should share
15 that with them as we had in training, and we asked them
16 if they would like to participate in a combined effort
17 at reviewing FMA programs as well as MNR.

18 So in 1987 we went back out on sort of an
19 audit, if you will, or an operational review with
20 representation from forest industry through the OFIA
21 and two people from Natural Resources and one
22 individual from Ministry of the Environment.

23 And again the end result on that, apart
24 from developing a good working relationship between
25 those people, was a series of recommendations which we

1 then sort of fed back into the planning system and, as
2 we went along, sort of developed and refined our
3 procedures. And every time that we would do something
4 like this, often these plans are put together on a
5 proactive: Okay, this is what we think we have to do,
6 how are we going to do it based on our experience. We
7 put all plans together, the manuals, things like that.

8 Obviously those things don't cover all
9 activities, so sometimes we have to go in such as - we
10 will refer to the Reffle Report - on a reactive basis
11 and say: Okay, what did we learn from that. Now, can
12 we take anything from that and plug it into our
13 planning documents, to your procedures, to how we train
14 people to do these programs so that these occurrences
15 don't repeat themselves. So it is sort of a loop, if
16 you will, a continuous system of going back and forth.

17 We are just about up to 1988. During
18 these larger scale programs, forest insect programs, it
19 is interesting to note that that's the first time that
20 we had forest industry involvement. Usually these
21 programs, spraying programs, are run locally; i.e., at
22 the district level, sometimes with some regional
23 co-ordination, but when we became involved in these
24 large provincial-wide programs we put together a
25 steering committee, a team of people from aviation and

1 fire management, forest industry, pest management
2 section and representations from all the regions.

3 Obviously, the insects do not respect
4 jurisdictional boundaries from region to region, so we
5 want to make sure that these programs, even though they
6 were locally-driven, they were all co-ordinated and
7 sort of centralized in terms of the structure and how
8 we should go about doing this. Simple things like
9 economies of scale and purchases, and purchasing
10 equipment and the insecticides, training, all those
11 things. We needed a group of shepherds, if you will,
12 to sort of steer these programs to their completion.

13 Once these larger programs have been
14 diminished, the need for that committee or that
15 steering group has been diminished and now these
16 programs just occur as an ongoing basis as need be.
17 Again locally-driven, run at a district or regional
18 level.

19 And as I said, we had forest industry
20 involved in these forest insect programs which is a
21 first and we sort of built on that and relied on forest
22 industry to give us more input into development of
23 policies and procedures of practices that would be
24 acceptable both to themselves and ourselves.

25 Initially what we referred to as the

1 Aerial Spraying Manual was put together for MNR
2 programs only. Some of the components in here in terms
3 of tendering and that mean nothing to the various
4 members of the forest industry, they have their own
5 procedures. So many of them have taken the time and
6 effort and produced sort of their own comparable
7 manuals or comparable procedural directives and that
8 they abide by.

9 Consequently, over this last ten-year
10 period there has been sort of a developing, changing
11 relationship with the forest industry and there is a
12 much higher dialogue, if you will, between the forest
13 industry and MNR in developing something on a
14 procedural basis that is mutually acceptable.

15 And that brings us right up to 1988 where
16 we have the guide where we, as Natural Resources,
17 provided a guide to industry based on -- and, again, it
18 was a committee work and this was a guide to give them
19 some information as to how they should prepare their
20 own manuals to do their own spraying.

21 Q. And you referred to 1988 but I think
22 you meant 1989, Mr. Nicholson. That document was
23 published I think--

24 A. Yes, I stand corrected.

25 Q. --last week.

1 A. It started in '88 and it came out in
2 '89.

3 Q. And that was done also in a committee
4 situation?

5 A. Yes. I believe there was
6 representation from OFIA, Natural Resources, and
7 Ministry of the Environment.

8 Q. Thank you. So this then -- and I did
9 ask you to take a lot of time doing that and I thank
10 you for getting it through that fast, Mr. Nicholson.

11 I think some of the Board members are
12 going to have to rely on the record for some of that
13 information, but at this point in time then this gives
14 us a pretty clear idea of the kinds of documentation
15 and directives and so forth that are in place that
16 govern these activities; is that right?

17 A. Yes. That's correct. This, as I
18 said, is just a framework. There are a variety of
19 other things that dovetail into it, they have been
20 filed, they are available, they are known in the
21 district offices, forestry industry has copies of them.

22 What we are briefly describing here as
23 kind of a chronology is really nothing new to most
24 people in my industry, most people in the Ministry, or
25 most people in the forest industry. Just identifying

1 the key points and how we came from where we started in
2 1977, 1987 was sort of an increased awareness of
3 pesticide usage and that we would have to not only take
4 more precautions, but keep better records, be more
5 accountable, the use of these materials was increasing.

6 So with that increase in use, new people
7 being involved, we undertook an effort to train more
8 people, to put these policies in place and it wasn't
9 something that we just sort of said in 1977: This is
10 what we shall do, but it was a thing that just sort of,
11 as I said, carried on and we just developed them, will
12 it probably be an ongoing process. Once the basics are
13 done, now we will just continue to refine the
14 procedures.

15 Q. And then I understand, and tell me if
16 I am right, that given all those procedures you still
17 have to engage on an individual plan basis with
18 developing a plan - and that's something you are going
19 to be talking about in a minute - but can you just
20 explain briefly then why, with all of these procedures,
21 it is necessary to go into that stage of developing
22 individual plans at that level that you are going to be
23 dealing with?

24 A. Okay.

25 Q. What are the things that you are

1 trying to achieve by doing that?

2 A. Okay. Well, I guess as a basic
3 premise it is always wise to be well prepared, to be
4 well planned; better to make plans and change them than
5 to have none whatsoever.

6 As I said at the outset, there is a great
7 deal of concern about these programs within our own --
8 end users within my industry, within the Ministry of
9 Natural Resources, within the forest industry, and with
10 the public in general.

11 We had to meet, obviously, regulatory
12 requirements. Regulatory requirements are such that
13 these materials shall be used in an environmentally
14 acceptable manner. That leaves a lot of discretion, if
15 you will, so we had to look at taking that information
16 and concisely putting it -- using that information to
17 put some direction as to how we will do our programs.

18 We wanted to meet those requirements and,
19 if anything, probably exceed them which, anecdotally
20 from my experience now, the Ministry of Natural
21 Resources more than exceeds. I have seen other
22 programs elsewhere and Natural Resources really sets
23 some very high standards that others will really have
24 to work to keep up with.

25 Q. Where are you referring to when

1 you -- just generally, what kind of experience?

2 A. Well, in general we have worked -- my
3 firm has worked throughout the world. We found this
4 manual being used in Africa as a guide: This is how
5 you shall do your spraying, which was kind of nice for
6 me, the author didn't know who I was -- or the
7 gentleman who was using it at that time and he was
8 quite pleased with how concise this was and so I gave
9 him a new copy.

10 We have done a lot of work in the United
11 States where we have noticed, even working for the U.S.
12 Forest Service that -- such as last year we went into
13 an area and we had a fairly significant program as
14 contractors and I assumed that people in the town would
15 know who we were -- not me particularly, but what was
16 happening. This town didn't even know and we had a
17 major program outside of the town boundary and they
18 were in a vacuum.

19 Oh, yeah, they had heard about that, but
20 there had not been what I thought was a normal standard
21 protocol of, you know, when you have communications
22 people and all these things which from time to time I
23 found a little onerous, I will have to admit, but I
24 thought, hmm, this was sort of standard and I was
25 absolutely flabbergasted.

1 So we went in with our company and sort
2 of followed a lot of these things that we had developed
3 over the years from Natural Resources and we came out
4 smelling like roses because we went to these extra
5 efforts as contractors which is totally atypical.

6 Anyway, enough of that. But the point on
7 this was what I had assumed -- as we developed in
8 Natural Resources, I assumed others would be doing
9 something similarly and, in fact, what has occurred
10 here is perhaps, as I said, set standards and I know in
11 talking with other people in other jurisdictions where
12 we work, in Quebec or Newfoundland or British Columbia,
13 they don't have near this level of planning or detail.

14 Communications is something they are
15 becoming more and more aware of, but in terms of the
16 technical approach, Natural Resources, and I think to a
17 second extent the forest industry in Ontario, is well
18 in advance of most.

19 Back to your question about planning.
20 Okay. I mentioned about the communications. Some of
21 the things that we have mentioned here, communicating
22 with other groups, the public, the communication
23 strategy, things we are going to talk about a little
24 later, these Inter-Ministerial committees bringing
25 those people in, having them being involved in the

1 planning and the conduct of these programs not just:
2 By the way, this is what we are doing, what did you
3 think about that; it was more like: By the way, we are
4 planning on this, how does this impact on you as a
5 Ministry of Labour or Health and obviously Environment.

6 And we have always dealt very
7 significantly with the Environment because of the
8 Ontario Pesticides Act and none of our programs or
9 plans have ever been a surprise to Ministry of
10 Environment, it has always been sort of a hand-in-hand
11 process with them.

12 A lot of this came about in meeting these
13 requirements, things like the legislation, workers'
14 rights, occupational health and safety brought us into
15 some fairly significant training programs and that was
16 to ensure that those programs were as safe as possible.

17 As I mentioned, we had all of these
18 people licensed, we had these aerial applicators
19 conferences, 200 to 300 people every year for 10 years,
20 at its peak probably over 2,000 people in all. Overall
21 I think we have trained - when I say we, Natural
22 Resources, excuse me - over 2000 people, trained them
23 to obtain their licenses from Ministry of Environment,
24 as well as things like aerial navigation application
25 bosses.

1 All these technical and management duties
2 that occur on a spraying program. We had training
3 programs in weather communications, safety. We
4 developed something called a project safety officer and
5 developed a program around that. There is none other
6 in existence.

7 We have put together - I have a stack
8 behind me - of training manuals specifically for forest
9 spraying programs and we have really gone above and
10 beyond the call, if you will, on training and ensuring
11 that our people - when I say our, that is Ministry of
12 Natural Resources - aerial applicators and the forest
13 industry are aware of the materials that they are
14 using.

15 We have involved that farther into WHIMIS
16 training, we provide them with material data, safety
17 sheets, they have copies of the labels of all the
18 materials, they are instructed in the calculations, all
19 the mechanical wherewithals of working with the
20 aircraft, safety on site, all these sorts of very
21 important but technical details.

22 MS. MURPHY: And for the record and for
23 your reference, the list of the guides and manuals that
24 Mr. Nicholson just referred to is found in the witness
25 statement for Panel 13 at page 313 where six guides and

1 manuals are listed. Those are the documents he is
2 referring to that are in that stack behind him.

3 MR. NICHOLSON: Is that fine?

4 MS. MURPHY: Yes.

5 MR. NICHOLSON: Okay. I guess as a
6 summation on this last decade of development, as these
7 procedures were developed or -- it was an evolving
8 process, obviously. As I said, we tried to be
9 responsive to the needs of forest industry,
10 environment, health and labour, workers. All these
11 things we tried to bring into the plans, into the
12 procedures, how we do our work, into the training
13 exercise. We tried to be proactive in terms of
14 thinking about 'what if', planning for as many things
15 as possible. As I said, it is better to have a good
16 plan and change it than to walk into some of these
17 major campaigns with no concrete plan.

18 And then through things like the
19 operational reviews, the Reffle reports, project
20 briefings, debriefings we would take some reactive
21 measures and take information such as project
22 recommendations and plug it back into the planning
23 process again. As I said, based on my experience
24 within MNR and now importantly outside - I am on the
25 other side of the desk - there really were some

1 standards set for communications.

2 Understanding of -- I put that little
3 triangular diagram up at the front right at the
4 beginning, if you showed that to almost anybody in
5 Natural Resources conducting these programs, they may
6 not know all the details of what occurs between all
7 those three components, but compared to other
8 jurisdictions our people would have a much better
9 appreciation of the significance of those components.

10 Technical ability of the people within
11 MNR far exceeds most jurisdictions and especially in
12 view of the fact that we consider MNR has people in
13 positions and they rotate them from time to time as
14 they go on in career development.

15 In other jurisdictions you maybe have a
16 group of people like myself who would do this all the
17 time as a career. Natural Resources will take a
18 variety of people, train them and spin them in and out
19 of these different tasks, and it is surprising how good
20 these people who had no prior experience, once they are
21 trained, how well these programs were run.

22 Again, technical ability of the staff is
23 very credible, the understanding of the programs, the
24 communication within the Ministry and within the forest
25 industry as well as with the public, as I said, are all

1 above and beyond the call, really extraordinary
2 measures and that, as I said, I can speak from an
3 anecdotal -- a personal point because I have had
4 experience after leaving -- since leaving Ministry of
5 Natural Resources which proves to me that this was a
6 good group.

7 MS. MURPHY: Q. Now, I understand that
8 the next thing you are going to do is go on and,
9 together with Mr. Iskra, describe the components of an
10 operating plan.

11 MS. MURPHY: But before we do that, I
12 understand that there was -- and you will recall there
13 was an interrogatory, a couple of them actually, and in
14 response to those a document was prepared, Mr.
15 Chairman. We filed that document as Exhibit 640, and
16 that's the one Number of Recordable and Reportable
17 Incidents on MNR Pesticide Operations in the Area of
18 the Undertaking.

19 I just have one question for Mr. Nicolson
20 before he carries on to the next part.

21 THE CHAIRMAN: Okay. I think after this
22 question the Board is going to take a short break.

23 MS. MURPHY: That's fine.

24 Q. I simply wanted Mr. Nicholson to help
25 us with the title of the document: Number of

1 Recordable and Reportable Incidents in MNR Pesticide
2 Operations in the Area of the Undertaking...

3 ---Discussion off the record

4 THE CHAIRMAN: Sorry, go ahead.

5 MS. MURPHY: Q. Just to advise what the
6 phrase recordable and reportable means and if there is
7 somewhere we can look for a definition, but I think --
8 let me see.

9 MR. NICHOLSON: A. I have it here, Ms.
10 Murphy.

11 Q. I am sorry. I find that on page 315,
12 the document --

13 A. Page 315 in one of the green books,
14 Volume No. I. If you would like to refer to, that we
15 can take a brief look at it. I guess the point to be
16 made here on this when we talk about an incident or an
17 accident --

18 Q. Yes, reportable and recordable
19 incidents.

20 A. Reportable and recordable. Even with
21 all these plans, incidents or accidents do occur. It
22 is important - and we have provided a document as to
23 how many of these accidents and incidents have occurred
24 since 1980 - it is important to put in place some sort
25 of a procedure.

1 When these incidents do occur people tend
2 to sort of a knee jerk reaction: Oh, we will have to
3 do something about this right away. So part of the
4 training program and something that is emphasized all
5 the time: Okay, if there is a spill or a leak or there
6 is an aircraft crash or whatever, you are going to have
7 some immediate reactions that you as a human are going
8 to want to do.

9 You are going to want to maybe be heroic
10 about certain things, but there are certain things that
11 you must abide by legally and safely. We don't want to
12 have anybody going in in some sort of a heroic effort
13 hurting themselves, maybe causing further damage than
14 has already occurred.

15 So we looked at trying to establish for
16 pesticide incidents, as we have for fatalities or any
17 workplace injury, some sort of system of reporting.
18 And we, in conjunction with I believe Health and Labour
19 significantly on this, we took a look at pesticide
20 incident and we gave that definition because that was
21 difficult to come to terms with. What I in my industry
22 may consider a pesticide incident, somebody else may or
23 may not. That level of significance depends on your
24 experience, obviously.

25 So we developed a definition for

1 pesticide incident which we described as any occurrence
2 outside of normal operating and handling procedures
3 which may be in contravention of existing guidelines.
4 As well, pesticide incidents include all occurrences
5 involving the public or bystander exposure. All
6 incidents shall be recorded and reported to the project
7 supervisor immediately.

8 And this brings us to this difference and
9 you will see there is a little flow chart here in
10 recordable and reportable. Everything is written down
11 but only when it reaches a certain level of
12 significance, which the project supervisor should have
13 enough expertise to determine how far along the chain
14 of command that should go, when does it become -- when
15 does it move from the recordable stage to the
16 reportable stage.

17 Q. And that description that you just
18 referred to of the definition of a pesticide incident
19 is written on that document that's on page 315; is that
20 correct?

21 A. That's correct. It is the upper
22 left-hand corner. And this whole document just tells
23 you what to do. You know, you just have to follow this
24 as sort of a recipe, as a chart. This is who you call,
25 you fill in the numbers before you start your program.

1 An important point to make is - and I
2 guess something like the Reffle Report on the Blind
3 River District incident - any time there is an
4 occurrence involving public or bystander exposure,
5 regardless of the significance or if anybody on site is
6 capable of -- has the training to judge that
7 significance, whenever that occurs - and you will see
8 in the report that's been provided there is even some
9 almost exposures - those occurrences are written up,
10 they are recorded, obviously, and then reported even
11 though there was no direct exposure, just even being,
12 as I said, an almost occurrence.

13 Anything that involves the public or
14 bystanders, somebody outside of our own immediate staff
15 that is flagged right away and taken up to a higher
16 level.

17 Q. All right. Thank you very much.

18 MS. MURPHY: Mr. Chairman, as you said,
19 you would like to take a break now. We are hoping to
20 complete this group. As you can appreciate, we would
21 like to get the evidence-in-chief finished this week.
22 Can you advise what plans you had for the rest of the
23 day?

24 THE CHAIRMAN: Well, how long do you
25 think you are going to be with the two witnesses?

1 MS. MURPHY: I think we would probably --
2 we would probably be at least another two hours.

3 THE CHAIRMAN: For both of them?

4 MS. MURPHY: Yes.

5 THE CHAIRMAN: Okay. Well, we will take
6 a short break now and that will bring us back shortly
7 after 11:30 and then we might proceed right through and
8 finish at 1:30.

9 We have to take a short break around one
10 o'clock. Mr. Martel has something he must do at that
11 particular time and then we will finish off at one or
12 1:30, if we can, and then break for the day.

13 MS. MURPHY: All right. Thank you very
14 much.

15 THE CHAIRMAN: Okay. 15 minutes.

16 ---Recess taken at 11:23 a.m.

17 ---On resuming at 11:47 a.m.

18 THE CHAIRMAN: Thank you. Be seated,
19 please.

20 Ms. Murphy?

21 MS. MURPHY: Q. Mr. Nicholson, I note
22 that we are going on to the next part which is the part
23 in which you are going to be discussing the components
24 of an operating plan.

25 MR. NICHOLSON: A. I will try and keep

1 this to a pace that most people can follow. An
2 operating plan is something that we develop, that we
3 have used, and it becomes a final document that we
4 refer to in all of our programs.

5 The operating plan is the final document.
6 It includes everything we referred to on this slide, a
7 project description, a safety plan, a security plan, a
8 communications plan and an operations plan.

9 Q. And is one of these developed for
10 each project or are they developed for several
11 projects?

12 A. Every project has one of these
13 operating plans put together. Every district will have
14 an operating plan even if the project goes over
15 boundaries. Often the authority for that is sort of
16 superseded from one district to the other, it is
17 shared, but there are still these operating plans put
18 in place whenever there is district staff involved in
19 running these programs.

20 The first component of the operating plan
21 is the project description, and I mentioned that
22 quickly before our break, and the project description
23 provides the information concerning the objectives of
24 the program, it is listed in my document, it is on page
25 290 and then again in Mr. Iskra's at pages 555 to 578

1 inclusive.

2 How the project description is put
3 together that's described, as I said, in the manual,
4 providing assistance in putting the project description
5 together, a guide to follow and it is identified in the
6 directives as insecticides and herbicides. The project
7 description is put together for all projects.

8 Even for FMA programs, initially these
9 project descriptions were put together for MNR purposes
10 only. FMAs follow a similar process whereby they put
11 together a project description. It is tied into the
12 timber management plan and the annual work schedule.
13 That becomes the -- the project description is included
14 in the annual work schedule.

15 As I said, the objectives of the project
16 description are sort of the W5: Who's doing it, what
17 we are doing, why, when. We take that document as it
18 stands by itself and we use that for internal review
19 within the Ministry, it is circulated to all the other
20 various supervisors, fish and wildlife, engineering,
21 roads, and any of the other resource management groups
22 within the district office that this activity could
23 have impact on, either through communications or the
24 actual operations, road closures, whatever.

25 Then that same document, after it is

1 reviewed and approved by the district manager, is
2 sent -- a copy sent to the regional office for their
3 review so that they know what level of planning in
4 detail has occurred and it's also sent to the Ministry
5 of the Environment. It is sent to the pesticides
6 officer with a copy of what is called a Form 5 permit.
7 I mentioned earlier that all of the spraying requires a
8 permit. Part of the permit issuance process is the
9 review of this document by the pesticides officer and
10 also by the Environmental Approvals Branch.

11 Q. That is of the Ministry of the
12 Environment; that's a separate branch of the Ministry
13 of the Environment?

14 A. That's correct. There is two
15 notifications: One to the pesticides branch, and that
16 occurs about 60 days in advance of the anticipated time
17 frame and, for the environmental approvals, it is more
18 of a notification than providing them with this - which
19 can be, as Mr. Iskra will show, a very thick document -
20 it is a covering letter informing them of this is where
21 this project will occur and please be advised.

22 Q. And you mentioned the Form 5, that's
23 a form that is provided for in the Pesticides Act, I
24 understand?

25 A. A Form 5 is the form that you submit

1 to obtain a permit and once the review from the
2 Ministry of Environment is finished, they return that
3 Form 5 to the project site, to the district office,
4 with any amendments they may wish to put on there.

5 Q. I see. Now, Mr. Iskra, you were
6 going to describe this part of your plan and tell the
7 Board just what items about your project description
8 should be taken note of?

9 MR. ISKRA: A. Yes. Basic components of
10 a plan are the -- No. 1, the objectives of the plan.
11 It differs from herbicide and insecticide; wherein
12 herbicide you are going to say something to the -- you
13 want to release a plantation from a particular type of
14 competition. In an insecticide plan, it is protection
15 of conifers, a commercial or high-value forest.

16 The next part of it is a forest
17 description. In insecticides you are really defining
18 one type of forest, you can use your strategies and
19 describe it as a 40 per cent jack pine component. For
20 herbicides, you are describing more the soils, the
21 vegetation and the severity of the competition as well.
22 Also, the pesticide to be used, the rate and method of
23 application, the aircraft -- desired aircraft, fixed
24 wing or rotary wing, the location of each project.

25 There usually only one project

1 description is written for an insecticide project
2 because the similarities of the types. For herbicides
3 it is specific to each area. So a herbicide entire
4 project will have many -- little project description,
5 if you may, of small areas throughout. So you may have
6 10 or 12 small descriptions here.

7 Q. Now, just before you go on, the
8 example of your -- just for the record, the example of
9 your project description was provided in Volume II
10 starting at page 555 and I understand that in that part
11 you showed examples of some of the photographs and maps
12 that would be put together with that; is that correct?

13 A. Yes. That project description on the
14 budworm '87, originally it was submitted in on the 16th
15 of -- the 15th of January and there we had initially
16 decided upon spraying up to 32,000 hectares based on
17 the information available at the time from the CFS.

18 Later on, actually in February, our first
19 indication was we were likely going to reduce that. By
20 the actual spray date or fairly close to it, we
21 realized we were going to only treat approximately
22 27,500 hectares. However, prior to the actual spray
23 project we conducted -- or the CFS conducted larval
24 surveys just before we went into the block and we were
25 prepared at that time to actually drop some of the

1 blocks if necessary.

2 Q. So you referred to information from
3 CFS, that's the Canadian Forest Service?

4 A. That's right.

5 Q. And that's information that's
6 provided to MNR from that organization?

7 A. Yes.

8 Q. And I think Mr. Churcher made some
9 mention of that in his evidence. And I understand then
10 that you get updates. Is that what has happened, is
11 that you get an update of that information closer to
12 the project date?

13 A. Yes. In fact, the sampling crew
14 frequently comes in and they have a tendency to start
15 on a particular block that's most likely to develop
16 first and they keep us posted.

17 Q. So in this particular case then the
18 actual project is scaled down from the original project
19 description; is what you are explaining?

20 A. That's right, yes. And because we
21 anticipated that there may be a change in some of the
22 blocks, we had what appeared to be a spread of the
23 infestation toward the east and at the same time we
24 suspected that there was a decrease in the west.

25 So at that point we really weren't sure

1 what was our best airstrip to operate out of. So we
2 covered the entire project in that manner and waited
3 just further information in order to make a decision on
4 the actual block areas.

5 Q. Okay. Thank you.

6 MR. NICHOLSON: A. Okay. The next item
7 on the overhead here is plan, a safety plan, as we have
8 described as a project description, and then four
9 companion plans that describe at a district level how
10 these programs will be conducted.

11 We look at the safety plan and that's
12 just general worker safety; hazards at the work site,
13 looking at things like physical injury, there is a lot
14 of physical labour involved; fire control, we are
15 dealing with flammable material, lots of fuel;
16 aircraft, propellers, whirling blades; safe disposal of
17 materials and containers.

18 We address that through training, on-site
19 inspections, we have safety officers and we have put
20 together emergency response teams, simple things like
21 the pesticide incident report.

22 Those are the information that is
23 included in the safety plan.

24 Q. And I understand you were involved in
25 designing the requirements then for the safety plan?

1 A. I had some involvement, but a lot of
2 that was put together at the district level where they
3 are used to running things like fire programs where
4 there is always safety plans put in place. It was
5 really only when we get into these larger spraying
6 programs that we adopted what had been used commonly at
7 the district level as a safety plan and we incorporated
8 that into our procedures.

9 Q. And those procedures are the ones
10 that we referred to earlier as the aerial spraying
11 procedures for herbicide and for insecticide?

12 A. Yes. All of these items are
13 identified in both those procedural documents: Thou
14 shalt do all your spraying in accordance with the
15 manual, prepare project description, and prepare these
16 four safety plans, or these four operational plans.

17 Q. Now, Mr. Iskra, I understand that -
18 for the purposes of the record, Mr. Chairman - your
19 safety plan commences on page 526 of the material that
20 has been provided, and can you just advise the Board
21 what elements of that safety plan you think they should
22 be aware of?

23 MR. ISKRA: A. Well, basically the
24 objective of the safety plan is to identify to
25 recognize the hazards with your project. We use a

1 generic guide provided I believe in 1985 and from that
2 we apply it to our own situation and you have to
3 determine things like the amount of pesticide you are
4 using, the amount of fuel, types of fuel, the type of
5 airstrip is very important too, gravel with dust
6 problems and things like that. Also --

7 Q. Just before you go on, where is that
8 generic guide you referred to found?

9 A. It's in a manual called the project
10 workshop. I believe it's also in Mr. Nicholson's
11 presentation in his evidence.

12 Q. That's fine. I'm sorry you were
13 saying you have to know which particular things might
14 affect a particular project?

15 A. That's right. And also you have to
16 try and use your local resources. As an example, the
17 project was held in Vermillion Bay which was well over
18 a hundred kilometres from the regional base which was
19 Kenora. Kenora was going to hold a regional helicopter
20 available for an emergency response.

21 We are based only 50 kilometres at
22 Dryden. In our herbicide programs, what we have done
23 is we have contacted the Dryden ambulance service and
24 they have put together a kit they feel would be good
25 for a rescue in the woods, let's say, if an aircraft

1 went down.

2 We also have a lake base there with a
3 fire base and that there is always a helicopter, a
4 large tool-four helicopter available on a particular
5 alert and there is also a fire crew work at that base
6 as well. So in the event of an accident, let's say in
7 the evening, we would rather than respond ourselves and
8 get that helicopter from Kenora, that crew would be
9 there, the fire crew would be there and in the
10 helicopter available to cut a helipad to enable to get
11 fairly close to the scene of the accident.

12 The ambulance crew would then do the
13 first aid rather than us and the pointer aircraft would
14 likely lead the helicopter to the scene. That is just
15 something that we had locally, it didn't cost us
16 anything extra. Everybody was quite happy to help us
17 out in that respect.

18 Q. And these details you are talking
19 about, those are details you had to think about in
20 order to develop the safety plan in the first place?

21 A. Yes. Planning well in advance is
22 important because if you do have an incident you can't
23 be reactive to it, you have to have thought it out in
24 order to carry appropriate measures effectively, so you
25 do a basic 'what if' scenario.

1 Another example I can think of is we
2 found that when we were doing our preflight blocks with
3 the Cessna pointer aircraft and checking the blocks out
4 looking at boundaries, we found that at the early
5 morning time when we were up operating there was an
6 awful lot of other aircraft at the same type of weather
7 and we quickly realized that those clear, sunny, calm
8 wind days everybody wants to be fishing just as the sun
9 comes up, and there was a lot of aircraft from tourist
10 outfitters just taking off.

11 So what we did is contacted them mall and
12 we told them about what we were doing, where we were
13 operating, and told them the aircraft frequencies that
14 we would be operating on.

15 Q. Those are radio frequencies?

16 A. That's right, yeah. And so they were
17 quite aware of our project. There was -- the first
18 time I think we have actually found that out was in '86
19 where we -- the pointer aircraft well in advance would
20 notice an aircraft on the water, so we thought about
21 that and tried to incorporate it in this year's plan.

22 Q. Anything else at this particular --

23 THE CHAIRMAN: Mr. Iskra, if I might just
24 ask a question. Is this notification to other aircraft
25 operators, is this a formal notum procedure.

1 MR. ISKRA: We did the notum as well and
2 we do for herbicide projects.

3 THE CHAIRMAN: Okay, thanks.

4 MS. MURPHY: Q. And was there anything
5 else in particular about your safety plan that should
6 be noted before we go to the next part?

7 MR. ISKRA: A. Well, the whole site, the
8 setup has to be planned and organized for potential
9 spills or fires with the fueling set up.

10 So when you are laying out the plan you
11 think of this, basically you identify the hazards you
12 have there and what type of setup would help you to
13 mitigate any problems.

14 Q. So that that setup you are talking
15 about again, is that something that you are then
16 thinking of in advance and designing in advance?

17 A. Yes, yes. Well, basically like I
18 mentioned earlier, you have to plan well in advance so
19 you are not being reactive to something and, in fact,
20 you have strategy on which to go on in case something
21 happens.

22 One other aspect certainly is worker
23 training, that is a very important. As Mr. Nicholson
24 mentioned earlier, a fair number of manuals, courses
25 that these people have gone through. The people

1 involved in the mix load area are walked around, they
2 are very familiar with the site. We have a designated
3 project safety officer which even may be someone
4 involved in the actual operations that does a standard
5 check list walk around from a course that he's been to
6 to identify items that possibly would have been missed
7 but it's quite a -- there is a lot to it.

8 Q. And that course, was that one of the
9 courses that was referred to earlier by Mr. Nicholson?

10 A. Yes, that is the safety officer's
11 course.

12 The security plan, it's -- again, there
13 is a guide to the security plan, a generic guide but
14 once again you look at your situation for security
15 around the airstrips. It's a Ministry policy
16 procedures FR-04-2010 and 1010, corresponding
17 insecticide to have security 24 hours a day on a mix
18 load site.

19 In our situation, we had security guards,
20 people on that we had hired for the summer and they did
21 other jobs like weather -- taking weather information,
22 maintenance, certainly coffee in the morning was a very
23 important part of the job there.

24 We also -- as an extra precaution, we
25 asked the OPP to come out. Our basic concern was

1 vandalism. We had a lot of wonderful pumps and
2 generators out at night there and so we had them come
3 by fairly often.

4 As far as block security, the way our
5 project would start is in order for block security to
6 be in position, fairly close to sunrise we dispatched
7 them, I made the call at 2:00 a.m. in the morning.

8 Q. Just before you go on, can you just
9 help us out and tell us what is the difference between
10 that mixing load security and block security; what is
11 the difference?

12 A. Okay. Mix load security is really to
13 watch the area. You are -- basically, you have the
14 pesticide, you have the equipment and you have the
15 aircraft and so there is a security at the airstrip to
16 restrict access.

17 Block security is to restrict access or
18 you have the spray blocks closed to the public during
19 spray operations and that is also in the policies and
20 procedures that I mentioned earlier and the block
21 security has to be dispatched well in advance.

22 While they are there, they also give us
23 information on the weather - that is the key thing -
24 and plus they do have radio communication with us at
25 the base and hand-held radios.

1 The other form of block security we would
2 use would be the aircraft themselves and that is the
3 pointer aircraft. Pointer aircraft will go to the site
4 in advance. While he's waiting for the other -- the
5 spray team to be loaded, the pointer will do a
6 reconnaissance around that spray block and check out
7 for things like boats on the shores that have come in,
8 vehicles inside the block that the block security might
9 have missed and that is just an extra thing.

10 Insofar as a herbicide comparison, block
11 security sometimes it's -- in fact more often it's more
12 complex. Herbicide areas are usually more accessible,
13 they are smaller, they are done quicker, therefore you
14 have to have a leap frog system with your block
15 security. So generally it's you need more.

16 For our project of 28,000 hectares we had
17 six and sometimes eight people on block security. We
18 had the same number for our herbicide project of only
19 500 hectares.

20 Q. And your security plan, just for the
21 purposes of the record, begins on page 521; is that
22 right?

23 A. Yes.

24 Q. And, Mr. Nicholson, is there any sort
25 of other general matters about security plans that

1 should be noted before we look at the next part?

2 MR. NICHOLSON: A. No, not really. It's
3 covered most items pretty well.

4 MR. ISKRA: A. One thing I forgot in the
5 project description is the maps and photos. Actually
6 I'll weight this. I didn't want turn around and carry
7 it for dislocating my shoulder.

8 These two manuals here or these two
9 binders here are the project description. There is not
10 that much on the actual project description, the maps
11 and photos of the area because you have to have one
12 15:840 or four inches to the mile scale of aerial
13 photography. So that encompasses a fair bit of
14 photography for 28,000 hectares.

15 And the herbicide is generally a lot
16 thinner in that respect, although there is more project
17 descriptions in it.

18 Q. And just before we carry on then, I
19 did have one other question for Mr. Iskra. You were
20 pointing out that block security -- you were pointing
21 out that block security is a little more complicated, I
22 think, than the mixing area and you were explaining
23 that people are there -- the people who do block
24 security are there.

25 Do people generally in the area have any

1 other way of knowing that you might be operating in a
2 particular area that would allow them to avoid it, if
3 they chose to?

4 A. Yes. Mr. Nicholson mentioned earlier
5 we started posting the blocks. That is the policy
6 procedure, that posting is required on both aerial and
7 ground applications. I will show a little slide later
8 of the actual sign itself. So these block security
9 people -- they're there, the signs are there, seven
10 days -- within seven days prior to spray operations.
11 When the area has been sprayed, they write the
12 information on that it has been sprayed.

13 THE CHAIRMAN: What legal force do the
14 security officers have? Suppose somebody tries to
15 ignore them. Can they charge them, summons them, call
16 the police?

17 MR. ISKRA: No. What happens in that
18 case, if people insist on going into the block, we
19 move. The situation we have come up with is
20 prospectors and they don't want anybody to know where
21 they are going. They want to go in a specific area.

22 The way we deal with that is with the
23 mining recorder, is to notify the mining recorder
24 because we don't know really who has secret interest
25 and they are certainly not about to advertise it.

1 So in that -- sometimes if you have a
2 6,000 hectare block and you know he's going in this
3 part of it, you can work on the extreme end of the
4 block and you will be totally in good shape. But
5 generally, if there is somebody on the block insists on
6 being there, we won't operate in it.

7 THE CHAIRMAN: And is that the same for
8 say cottagers or people who own property within a block
9 that you want to spray near, if they insist on not
10 being kicked off their own lands, so to speak?

11 MR. ISKRA: Well, we wouldn't kick them
12 off their own land. It's not really a situation, we
13 are not -- well, I guess what I would like to say is,
14 we can't really restrict the access if they decide to:
15 Hey, I'm going, we will have to wait, but we are asking
16 them to cooperate.

17 THE CHAIRMAN: Why hasn't that been
18 thought of? I am just curious, in terms of, if
19 spraying programs are considered by MNR to be an
20 essential aspect of forest management, why in fact
21 don't you have the regulatory authority to say -- when
22 we are going to conduct the spray program, after we
23 have decided with the various planning processes in
24 place, then during it we will have the authority to
25 say: Kindly wait until we complete this program before

1 you go in?

2 MS. MURPHY: Well, Mr. Chairman, first of
3 all I think maybe what we better do is undertake to
4 advise you about various parts of the Public Lands Act
5 and the rights of the public to enter on public lands
6 and also some other provisions that deal with the
7 situations in which road closures can occur.

8 And so -- and we would certainly do that,
9 but I understand that Mr. Galloway also has something
10 that he would like to comment on.

11 MR. GALLOWAY: I was just going to say:
12 In a situation where the project was of importance or
13 you thought that that might occur, you would use the
14 Public Lands Act and I have had experience doing that
15 to actually close off access to that area, but it would
16 never be in a case where the person had access to their
17 own property behind that.

18 MR. ISKRA: It's something that just
19 doesn't happen very often. Most people would like to
20 stop and watch the planes.

21 MS. MURPHY: Q. Thank you. The next
22 part you have here is the communications plan.

23 MR. ISKRA: A. I guess an important
24 thing of the communication plan, as with the others,
25 that all of these plans should be emphasized, are there

1 to provide fairly strict control. There's the
2 directives as to what we should consider, there is the
3 project description describing the work, and then these
4 actual plans become the rules and regulations on site
5 that describe how this is done, and adherence to those
6 plans is very critical, especially with the
7 communication plan, as Ed had mentioned in terms of
8 part of the security aspect, notifying people.

9 That ties in with trying to minimize
10 conflict such as your example with prospectors,
11 minimize conflict with other users at the same time
12 frame in the same place, make sure that the area is
13 secure. One of the best ways is providing lots of
14 communication on that through the items that Ed has
15 mentioned in security posting, 30 and 7-day notice.
16 Those sorts of approaches.

17 On the actual --

18 Q. You just talked about 30 and 7 day
19 notice and Mr. Iskra just referred to the 7-day notice.
20 What was the other one?

21 MR. NICHOLSON: A. Okay. In advance of
22 a program, 30 days in advance of the anticipated
23 start-up, we post a notice in the local newspapers in
24 the area surrounding the project site indicating that
25 there will be an aerial spraying program, just referred

1 to as notice of aerial spraying, and it is often
2 accompanied with a map will show the work site area and
3 who to talk to at district office for further
4 information. Just a brief cap of what is planned and
5 then, more importantly, where to go for further
6 information.

7 And because of the possibility, not
8 everybody receives that a month in advance or maybe
9 they have forgotten or there has been some changes or
10 whatever, about a week before we start -- anticipate
11 the start, we put in the second notice in the same
12 media as a refresher: By the way, this is what is
13 happening next week. If you have any questions or
14 comments, come to the district office or the industry
15 office, whatever.

16 That is a critical part and that's by
17 regulation in our directives.

18 Q. And I think we will be hearing more
19 about that -- a little bit more about that in Panel 15.

20 A. Another aspect of that and it relates
21 as Ed had said in dealing with the mining recorders,
22 and that is providing information to those people who
23 are most intimately involved with that, local
24 outfitters, the people that Ed mentioned with the
25 airplanes, people within the immediate vicinity perhaps

1 who have a cabin there, a camp or who are residents in
2 and around the area.

3 We make extraordinary efforts to contact
4 those people as well and that's all laid out in the
5 communications plan as to who you shall contact and
6 when.

7 Q. And I'm sorry --

8 MR. ISKRA: A. In that communication
9 plan, again it's important to identify your audience.

10 Q. I was just going to point out that
11 yours, just for the purposes of the record, Mr. Iskra,
12 begins on page 496 of the document; is that right?

13 A. That's correct.

14 Q. Okay.

15 A. As I said earlier, the important item
16 there is to identify the audience. And here we are
17 looking at an area in terms of No. 1, human habitation
18 or private land, cottage lot development, but also
19 other spray users and they include people with boat
20 caches to nearby lakes where they have some interest in
21 a particular area, in fact they could be there using
22 that boat.

23 Trappers, a trap line. Any spray block
24 that occurs within a trap line we -- he is -- a person
25 is a concerned user and we notify them. Tourist

1 outfitters or tourist camps, near tourist camps, bear
2 hunt areas. There is -- in our district now there is
3 designated areas for individual bear hunters, each of
4 them now has their own area, so we notify them.

5 Commonly they would set bait out and
6 particularly on the edge of a cut-over that could be in
7 the block and their cover is directly in that standing
8 timber on the edge of the boundary, and that is
9 something that we have almost run across on a number of
10 occasions.

11 Some more examples are Crown land
12 recreation access points. These are more so values.
13 In addition there, there is local client groups like
14 nature groups, MPPs, industry as well, anyone who we
15 may determine would be a user of the area.

16 Also, I guess in conjunction with the
17 TMP, in the annual work schedule notice, we notify
18 interested people through there. Our mail out was
19 about 1,300 even though the area was fairly remote.
20 Our herbicide operation, which is significantly
21 smaller, is about 900 people that we would notify.

22 Q. And those are direct written notices;
23 are they?

24 A. Yes. We went above and beyond in
25 cases where we visited a tourist outfitters that had

1 shoreline or cottages or cabins on the shore of a lake
2 across which are well away from the block and this was
3 again with the fishermen.

4 And also a lot of the people wanted to
5 know when would we were going to be finished, so we had
6 a telephone list or ways that we would notify them
7 that, in fact, as of this morning, spraying operations
8 are complete. So there was a follow-up to that. And
9 there was people that were just concerned and not in
10 opposition to the project, but they would like to be
11 informed that in fact we had completed operations.

12 MR. NICHOLSON: A. The final component
13 of this operating plan is the operations plan and that
14 provides perhaps the most substance in terms of
15 technical detail and that is how thou shalt do the work
16 and it goes in companion with all the other plans and
17 it really is the document that ensures that we maintain
18 this high level of what as we refer to as operational
19 control.

20 It describes in there who shall do what,
21 when they shall do it, who is responsible for all the
22 technical duties on site, loading the aircraft, how
23 they shall do that, handling the fuel, who is
24 responsible for a lot of the duties described in the
25 safety, security and communications plan.

1 Q. It might be useful just to have a
2 look, Mr. Iskra, at the document that I have been
3 giving you page numbers for.

4 If you look at page 465, and maybe Mr.
5 Nicholson would want to comment as well. But page 465,
6 as I understand it, lists the items that are dealt with
7 in that operations plan; am I right?

8 A. Yes, 465 just as a Table of Contents,
9 465 through to 467 must cover perhaps 30 or 40, if not
10 more, separate items that are notated that must be
11 considered in preparing this operations plan.

12 And, again, it's important that people
13 abide by this plan and stick to it. They are flexible
14 but it's critical that they follow the instructions
15 that are provided here.

16 MR. ISKRA: A. Our operation plan was
17 submitted by April 1st. We were still not a hundred
18 per cent sure what airstrip we were going to run on.
19 We had not received a successful bidder at that time,
20 we hadn't awarded the contract.

21 We were anticipating one type of aircraft
22 and after -- even after the award, the contractor
23 suggested that he would change the aircraft which means
24 changing fuel types as well and that affected the
25 setup.

1 So the operating plan is very specific to
2 the project, but the important thing is that a lot of
3 things could change in it but your objectives are
4 stated, your guide to the plan is there and whatever
5 the changes are, the important thing is the objective
6 doesn't change but the details they might.

7 Q. And is there any guidance given to
8 you, Mr. Iskra, as to what items should be covered in
9 that operations plan. It is quite a detailed list
10 here. Is there somewhere where you can go to find out
11 what you should be including?

12 A. Again, the 1985 generic operations
13 plan that was prepared for an Espanola project and that
14 is also in Mr. Nicholson's evidence.

15 Q. Now, there is considerable interest
16 in the interrogatories and some of the issues. With
17 respect to the example that you gave, Mr. Iskra, the
18 example that you were showing was an insecticide
19 project and you have also made comment about how some
20 of the things that you have discussed might be the same
21 or might be different in a herbicide project and then
22 there was some questions about that.

23 Mr. Nicholson, I understand you are going
24 to be talking a little bit here about the comparisons
25 between aerial applications of herbicide and

1 insecticides?

2 MR. NICHOLSON: A. Thank you, Ms.
3 Murphy. Ed has given examples of the plans and
4 everything that we go about in running these programs
5 on insecticides and herbicides. Obviously there are
6 some similarities, we are using pesticides, we are
7 using an aircraft in a forest area.

8 The planning, there is some differences
9 and similarities as we go through it. Looking, for
10 example, just following this brief sketch list through,
11 planning which will be covered more in detail in Panel
12 15.

13 For example, with the herbicides,
14 planning is locally driven, it's done by both MNR and
15 FMA for these programs. You can contrast that with the
16 insecticide programs, they tend to be -- although they
17 are driven or conducted locally, they are planned from
18 a central agency through regional and Head Office
19 personnel in close conjunction with the CFS. So you
20 have this difference in terms of the plans. They still
21 follow comparable procedural documents, the directives
22 we mentioned earlier.

23 The herbicides are planned on a five-year
24 basis. Insecticide programs obviously on an as need be
25 basis. The policies and procedures have been described

1 and there has been lists provided of all those
2 documents by which the planning is conducted.

3 The operations, there is some significant
4 differences there. Usually, as Ed has mentioned, the
5 herbicide programs, because of the nature of what you
6 are doing, they tend to be smaller. We are dealing
7 with programs in hundreds of hectares compared to
8 insecticide programs which are usually in the magnitude
9 of thousands of hectares.

10 Obviously the larger the program the more
11 people you are going to need, the more extensive the
12 plan. You still follow the same skeleton, but you may
13 have more information in terms of an organizational
14 chart, more technical components, more equipment, more
15 staff, perhaps a higher degree of reporting because you
16 are involved with obtaining information from the
17 Canadian Forestry Service in terms of starting and
18 stopping your program.

19 Q. Is that always true that the
20 insecticide program is larger than the herbicide
21 program?

22 A. Not always true, but over the last
23 decade, yes, in general they are but, again, that
24 reflects the need of the programs. There will be some
25 sort of action taken when there is a requirement for it

1 as Mr. Churcher has mentioned.

2 Q. Yes. We were hearing about some
3 insecticide operations that are being undertaken this
4 year that may be atypical that way. Is that right, Mr.
5 Churcher?

6 MR. CHURCHER: A. With regard to their
7 size, do you mean?

8 Q. Yes.

9 A. Not so much this year perhaps, but I
10 can think of an operation in 1985 where -- in southern
11 Ontario in response to the gypsy moth situation there,
12 the gypsy moth program itself covered only 170
13 hectares.

14 It was part of -- the provincial program
15 itself actually covered I believe a quarter of a
16 million hectares, 250,000 but that was including also a
17 jack pine budworm component and a spruce budworm
18 component.

19 Q. Thank you.

20 MR. NICHOLSON: A. The biggest
21 difference in these programs is usually the size of
22 them and with the larger programs there is more
23 aircraft, there is more personnel and a whole
24 complement of things that goes with that.

25 With the size of these programs,

1 obviously you are dealing with different block sizes,
2 that brings into play different types of equipment,
3 different sorts of navigational requirements. Ed
4 mentioned navigation aircraft pointers to find some of
5 these large areas of contiguous canopy to determine a
6 block, compare that to spraying a herbicide in a very
7 well defined cut-over.

8 Accompanying that is some of the
9 restrictions we put on that in terms of buffer zones.
10 We are dealing with different pesticides, we are
11 dealing with a different environment, an immediate
12 environment and a larger environment and, consequently,
13 there is a difference in the implementation of the
14 buffer zones using these materials.

15 Where the pest is is a critical thing.
16 Obviously, competing vegetation is down at a low level
17 target, down on the ground or thereabout. Insects are
18 in the upper canopy of the trees. The insects usually
19 occur earlier in the season, the major defoliators that
20 Mr. Churcher has mentioned. Control programs for those
21 pests would occur in May and June. Herbicide programs
22 would be June, July -- late June, July and August. So
23 the pest is in a different space and a different time.

24 An important thing to recognize in this,
25 and this relates to some of the difference in

1 techniques, is with the insect pest. We are dealing
2 with a very definite and well defined biological time
3 frame, a spray window we refer to it as. We really
4 have to maximize our efficiency, that's why we have
5 made some significant technical strides in how we go
6 about doing this work to ensure that we can cover as
7 large an area in the shortest time frame as possible to
8 maximize our results.

9 Again, obviously a difference in choice
10 of pesticides to herbicides, Vision and 2,4-D for
11 conifer release and site preparation. For
12 insecticides, for other insect control there is variety
13 of biological and chemical insecticides. Natural
14 Resources' experience the last few years has been the
15 use of biological materials only.

16 As I mentioned, there is some differences
17 in the technical manner in which these programs are
18 conducted and Ed will have some slides to show that.
19 To try and deliver these pests -- this pesticide to the
20 pest, to the target area, there has been a whole --
21 science has evolved in developing some suitable highly
22 sophisticated application technology. Some new types
23 of atomizers that allow us to be very efficient in the
24 insect control program and that technology is developed
25 initially for insect control programs and it is now

1 spinning off and we are using it in herbicide programs
2 where we are also trying to maximize our efficiency.

3 As a comparison, we tend to talk about
4 spraying pesticides for forest insect control in very
5 low volumes, sort of this magnitude, or one to five
6 litres per hectare which is a very small amount of
7 material to adequately distribute over a forest canopy.

8 You can compare that to herbicides. In
9 cut-overs where we are dealing with volumes 50 to 60
10 times in excess of that, somewhere between 30 and 60
11 litres per hectare.

12 Because of the nature of where those
13 insects are located in time and space, we tend to use
14 different meteorological parameters. With these very
15 small droplets that are produced for insecticide
16 spraying, we like to have a little bit of breeze, some
17 wind to help impact that spray into the canopy.

18 We contrast that with herbicide spraying
19 where we don't want to have the same sorts of
20 meteorological parameters there, we don't want breezes
21 and high winds blowing the herbicide off site, so we
22 look for slightly tighter, more narrowly defined
23 meteorological parameters.

24 Q. Can I just ask you to go back to
25 something here because--

1 A. Okay.

2 Q. --I think some of the things, as I
3 understand it, that you are discussing are
4 inter-related and if you just go back a little bit you
5 were explaining that with insecticide you are using --
6 and you said low volumes.

7 A. Mm-hmm.

8 Q. And you are using a certain kind of
9 technology. Could you explain what that low -- the
10 concept of the use of low volumes means together with
11 that technology?

12 A. Okay. Low volumes, low and -- when
13 we talk about low volume or high volume it tends to be
14 obviously a difference in volume, it is a relative
15 amount.

16 When we speak of low volumes, that in the
17 insecticide and the forest insect control programs, we
18 now refer to low volume spraying or ultra-low volume
19 spraying where we are dealing with, as I said, between
20 one and five litres of the actual total mixture applied
21 over a hectare of forest. That, as I said, is a very,
22 very small amount and the only way we can adequately
23 disperse that is through the use of something called a
24 rotary atomizer which actually is a spinning cage and
25 actually shears the volume of spray up into a great

1 number of very small droplets and each of these very
2 small droplets -- and we are dealing in something here
3 referred to as microns, we want something about the
4 size of a human hair. 50 microns is considered as
5 appropriate.

6 We need this sort of device to adequately
7 cut up that small volume of spray so that we can ensure
8 that we have adequate numbers of droplets, assuming
9 that they are all toxic, distributed through the
10 canopy.

11 Q. So what's the relationship between
12 what you have just told us then and what you were
13 explaining about meteorological parameters?

14 A. Okay. Because these droplets are so
15 small - and, as I said, we are dealing with something
16 that is about the size of a human hair in diameter -
17 they are often so light weight that they tend to be
18 buoyant and without a little bit of breeze, some wind
19 providing the equivalent of weight or some kinetic mass
20 to those droplets, those droplets will stay suspended
21 above the canopy.

22 So we like to work, when we are working
23 with these small droplets, in what we call breezier
24 situations where we have a little more wind which will
25 actually provide the equivalent of weight, it will push

1 these droplets into the canopy. And then when this
2 breeze is blowing over the top of the canopy, we tend
3 to get a lot of turbulence and eddies in the upper
4 portion of the crown and that further works at
5 incorporating the spray droplets into that upper
6 portion of the canopy where they are most efficient.

7 So we take these devices which very
8 efficiently cut up a very small volume of spray. We
9 want a very small volume of liquid. Because of the
10 large areas to be covered, we have to be very efficient
11 in terms of that, and a lot of the research and
12 development in pesticide formulations has gone to
13 higher potency, more concentrated formulations to
14 achieve this so we can treat a larger area with every
15 load.

16 Q. So that was for the insecticide. And
17 then are the similar things related together when you
18 look at herbicide?

19 A. Herbicides, to contrast that, we look
20 at similar meteorological parameters where we want high
21 relative humidity so we don't have too much
22 evaporation. We want as low a temperature as possible
23 so that we don't exacerbate that problem with
24 evaporation, but the equipment that we use there
25 produces much larger droplets which are less prone to

1 drift. We want to work in lower wind situations so
2 that that material falls down into the cut-overs
3 without moving off target.

4 That's sort of the significant difference
5 between the two programs and the technology and all of
6 the wherewithal that goes with that in terms of the
7 staffing and that is based around that difference in
8 technical approach there.

9 How we plan them and execute them is the
10 same. The control in terms of controlling that
11 operation is very similar, we follow the same rules.
12 The biggest difference is in the size of the programs
13 and the manner in which we conduct simple things like
14 the flying.

15 Q. And I think some of the items that
16 you were describing will be shown in the photographs
17 that Mr. Iskra is going to be showing?

18 A. Just about all of these will be
19 described and shown.

20 And a last item that people raised
21 questions about when we are talking about herbicides
22 and insecticides: How do we know where we were, how do
23 you know you have achieved your target, your goal, did
24 you spray where you wanted to.

25 With insecticides you rely upon results

1 from our own pest management section through the
2 Canadian Forestry Service who tell us how successful we
3 were in terms of population reduction, per cent foliage
4 say, whatever. We can do that by sampling trees,
5 cutting branches. As Mr. Churcher has described, we
6 can do it visually with aircraft, taking photos, aerial
7 surveys.

8 With herbicides it is a little different.
9 We are dealing with something that we can manage on a
10 local level, we don't need the expertise or the
11 manpower of the CFS, so it is done in terms of finding
12 out how well we met our objective. We do that on an
13 annual basis just as we would on an audit on tree
14 planting or any other forest management activity.

15 We can use aerial photography, infrared
16 photography because there will be obvious signs of
17 herbicide application, and we can assess the results
18 before the next season. We have to wait usually to see
19 that physical damage, the impact on the foliage and we
20 can take that information and use it the following year
21 to go back in and maybe successfully treat an area if
22 we weren't content with the results.

23 All the district offices have the ability
24 to do that. A lot of it is done on a visual survey, an
25 inspection through the cut-overs or with a vehicle or

1 an aircraft.

2 Q. And some information about that was
3 also given earlier by Mr. Galloway and Ms. Krishka?

4 A. Yes, that's correct.

5 MS. MURPHY: Mr. Chairman, the witnesses
6 are ready to go on to the last part of the evidence
7 which is looking at some of the photographs of Mr.
8 Iskra. I expect -- I understand you wanted to break
9 about one o'clock?

10 THE CHAIRMAN: Well, how long will the
11 photographs take, do you think?

12 MS. MURPHY: If we commence them we might
13 be able to finish by 1:30 or so, if you are going to
14 break at one.

15 THE CHAIRMAN: Okay. Why don't we try
16 and finish the direct today if we can, but we are going
17 to have to take a break at one o'clock for about five
18 minutes, if we can, and if it gets close to 1:30 and it
19 looks like we won't, well then we will have to put it
20 off until the 14th.

21 MS. MURPHY: Okay. All of the
22 photographs that you are going to see were reproduced
23 in the witness statement; there are no new ones, and we
24 are not going to be looking at all of them.

25 I asked Mr. Iskra to identify for you

1 which one of the photographs we are looking at, but
2 what we have asked him to do is show you some of the
3 significant technical details that you can see in those
4 photographs.

5 MR. ISKRA: This is photo 2.1.1 in my
6 evidence and it is the identification of the high risk
7 jack pine stands that were listed in the project
8 description. With that we use the projected harvest
9 areas, the defoliation maps and access roads and
10 together with that information we determine actually
11 spray block boundaries and incorporate them in through
12 the project description.

13 The second step is again to identify the
14 user groups, the values in the areas, boat caches,
15 trappers' cabins and so on.

16 MS. MURPHY: Q. Just before you go on,
17 it might be wise for the purposes of the record to just
18 identify what page is the beginning of your photographs
19 for anyone else who wants to follow.

20 THE CHAIRMAN: Page 402, Exhibit 604B.

21 MS. MURPHY: Thank you.

22 MR. ISKRA: This is photo 2.5.1 and a
23 picture of somebody posting the spray block. The
24 information on the sign is the pesticide name, the date
25 sprayed and a telephone number for inquiries. This,

1 along with the media notices, 30-day, 7-day notices are
2 standard to all spray projects. Again, I mentioned
3 earlier, there is a Ministry procedure -- policy and
4 procedure.

5 This is what we call a tank farm and this
6 tank farm has to be designed to accommodate the amount
7 of pesticide that's being delivered, plus --

8 MS. MURPHY: Q. And that's 3.3.2, was
9 it, Mr. Iskra?

10 MR. ISKRA: A. Yes, correct. And this
11 tank farm is designed to accommodate a pesticide
12 delivery that's going to come in two bulk tanker
13 trucks, two large trucks containing about 25,000 litres
14 as opposed to 205-litre drums.

15 This is photo 3.3.3 of a pesticide mixing
16 unit and it is common primarily to herbicide projects.
17 This one in particular is the northwestern unit we have
18 had here in Dryden and it is on a herbicide project
19 right now. If our project was -- the budworm project
20 was only half or slightly less than half, I would be
21 inclined to use this because our project would come in
22 in drums because we don't have -- the pesticide would
23 be coming in drums, we don't have enough to fill a tank
24 or truck. So the operations will look fairly similar.

25 The advantages to a portable mixing unit

1 like this is it is compact and you can move it from one
2 block to another block. So helicopter operations, they
3 are fairly synonymous with these types of mixing units.

4 The disadvantages to it, it becomes
5 inefficient when you have several aircraft. For
6 insecticide they come in teams and you could have
7 three -- usually two to three aircraft. If you have
8 two teams it is just too cluttered and you can't really
9 work with that type of a system.

10 Here is an aerial view. This is photo
11 3.3.12, and that's the Dryden budworm project. All the
12 airstrips and helipads have to be -- comply with
13 Ministry of Natural Resources' standards as produced by
14 the aviation and fire management centre in terms of
15 length, width, helipads as well.

16 The setup here relates to both safety and
17 efficiency. You have to remember when Mr. Churcher
18 discussed earlier about that spray window and how
19 important it was in his graph to protect the foliage at
20 the initial stages of infestation. So this project
21 here is designed for efficiency and the two aircraft, I
22 have got my pointer here, these are fairly large piston
23 Thrushes. They carry a payload -- on this strip, they
24 are using about 900 litres.

25 These are Piper Pawnees. There is a

1 third one - and that's it right there (indicating) -
2 and they carry a much smaller payload, and the
3 important thing is the aircraft have to be the same
4 payload because you can't travel in teams and have one
5 run out and continue on in this formation, a spraying
6 formation.

7 Also, notice on the very edges here,
8 these are the fuel tanks. Two different types of fuels
9 for these aircraft and for these aircraft. So the
10 loading stations would be right about here and the
11 aircraft would come away from the parking area, move
12 around in this position and line up right here where
13 they are fueled and loaded simultaneously so there is
14 no additional downtime.

15 The important thing is you expect you can
16 only get maybe one load a day and in that one load we
17 would be able to treat with this operation almost 2,000
18 hectares. If we had one spray in the morning and there
19 is a chance of getting another one in before our
20 weather became -- the parameters were out of our
21 window, then the important thing is the efficiency.
22 The aircraft would not likely land the same time, they
23 would just line up in here, the Pointer would likely
24 stay up, have enough fuel to stay on the site and they
25 would come in just like a pit stop.

1 And very important in this type of
2 operation that everybody there - and there is four
3 people in this mix load area - that they know exactly
4 what they are doing. Ministry staff do not fuel
5 aircraft, they assist. The pilot has to do the
6 fueling.

7 The centre portion is the actual tank
8 farm, the BT tank farm right here. (indicating) This
9 here is a combination of a ditch and a berm where the
10 idea in this particular case, recognizing the major
11 hazard is the fuel, and our fuel was in 9,000 litre
12 tanks here.

13 In the event of a severe rupture or a
14 broken pipe or something and it is a major leak, that
15 in fact it would be contained. I don't believe we
16 would have had the capability to handle a large fire,
17 so the idea is get away and let the berm stop it and
18 let the fire department handle it in this particular
19 case.

20 Situations where the pesticide you are
21 using is too dangerous to be kept close to a fuel, in
22 the event of fire, you would have an opposite loading
23 system right here (indicating). And the disadvantage
24 is you have fuelers on this side and loaders on this
25 side and the traffic inbetween with as much as eight or

1 nine aircraft, you have to have fairly strict rules and
2 regulations about when to walk across.

3 There are all sorts of hoses and
4 grounding, bonding systems and wires running. No one
5 in this area is allowed unless they are fully trained.

6 This trailer right here is called an air
7 advisory trailer. (indicating) It is specific to this
8 project because we have two spray teams. One spray
9 team wouldn't require it, but because these spray teams
10 are out on the block, when they operate you can't have
11 one pointer shouting orders at a spray team and the
12 other team hearing that. So they operate on two
13 different frequencies.

14 And as a consequent, there is -- our rule
15 is when they enter an area within 10 kilometres of the
16 airstrip they switch to the airstrip frequency. So we
17 operate on three aeronautical frequencies here. And in
18 the morning as well lining up, who goes where. It is
19 very important with that air advisory to do -- as well
20 as a flight watch, is also to help co-ordinate all the
21 aircraft.

22 In a project I worked on we had three
23 spray teams which ended up being about 11 or 12
24 aircraft, including the pointers and a real advantage
25 is to who goes what, where. The spray teams have their

1 own nicknames just for brevity on the radio, very clear
2 nicknames on this.

3 Another aspect of operation, probably
4 more common to herbicide, is water. There is a water
5 tank here, as well as a rinsing tank. (indicating) All
6 these tanks have to be rinsed three times exactly the
7 same as drums would be. And the water in this
8 particular case was used for rinsing out the tanks; No.
9 2, for dust control, especially when loaded aircraft
10 here are taking off in this direction. That was
11 another important safety hazard we had here.

12 This trailer here, air advisory trailer,
13 also maps and records. For me to control, to have a
14 control of this project, what aircraft was going where,
15 I had to have some sort of a centre, communication
16 centre. The application boss when loading the aircraft
17 would notify by a hand-held radio to the communications
18 person or the radio operator here, who is also maps,
19 records, weather, basically the office person right
20 here, notify what he was loading, how much, what batch
21 number on which aircraft.

22 Also, the information they would be
23 collecting before the spray is weather from Environment
24 Canada, from other spray areas, our local weather
25 person at the fire centre, as well as that type of

1 information I would be able to communicate by radio if
2 I need to be reached. I am -- basically have one of
3 the easiest jobs if things go well.

4 This centre here is also the place where
5 block security reports. When block security call in
6 regarding, I am on the site at this time, we note that,
7 and all that information is recorded. And this is the
8 last load, I am heading to block 27, and that type of
9 information.

10 So we can co-ordinate block security, we
11 can co-ordinate these people. The air advisory talks
12 to the aircraft flying in the same trailer as that
13 radio operator, weather person, can talk to the ground
14 people as well. So there is a real total flow of
15 communication, and there is a diagram that's in my
16 evidence as well just to show the lines of
17 communication there.

18 For security this is gated, the whole
19 thing is gated. We have a security person there who
20 monitors security, the gate, to let people go in during
21 the day. During the evening everything is locked.
22 That person does the regular patrols, takes weather
23 every 15 minutes for us and so at two o'clock in the
24 morning, when all I have is stars to look at, I have
25 weather information as: How has the temperature been

1 behaving, how is the relative humidity. If the
2 relative humidity fluctuates, I know the system is
3 coming in.

4 This operation I would consider a
5 medium-sized project. What makes a project a big
6 project is when you have to have accommodation and
7 food, and you have that whole structure of a camp
8 structure and you are on there for two weeks prior to
9 the spray setting that structure up, from septic
10 systems to cookeries.

11 And so a project that has a camp
12 operation is a fairly complex project and it will be a
13 separate system there and occassionally you would have
14 a project co-ordinator as well as a project supervisor.

15 In this situation here we commuted right
16 from Vermillion Bay so it wasn't -- we stayed at
17 hotels. So it was a real headache off our shoulders.

18 Whoops! This one is rather dark. It is
19 photo 3.3.13 and this is a picture of a herbicide
20 operation in Wawa. Around this enclosure they have got
21 a little snow fence. You can see one of these plastic
22 snow fences, that's their security. At the base of the
23 snow fence they use a shovel and they have dug up a
24 berm right around the edge of the snow fence.

25 All pesticide storage areas have to be

1 posted on four sides. This is a regulation from MOE.
2 I think the sign says: Chemical -- Warning, Chemical
3 Storage Area, No Entry, something like that, and this
4 was the situation as well on the budworm projects.

5 As I said, this is the water tank that
6 feeds the pesticide mixing unit, a very mobile little
7 operation. The pesticide is stored here. They would
8 have maybe no more than eight drums for their project,
9 yet every component of that project exists in this
10 small operation as it does in our larger one including
11 the security. They would have a trailer on site where
12 they would spend the night, a smaller trailer.

13 This was also at a municipal airport.
14 Things like emergency response may be taken care of
15 locally. In herbicide projects we don't have a little
16 half-ton with fire extinguishers and safety kits, we
17 have a giant yellow truck with a siren on it that will
18 respond to those things as well.

19 So all the elements of the plan, the
20 project are there even for this little one and it is
21 two people on the ground, one project supervisor, and
22 the mixing system is adequate to service, but these
23 people are busy because the aircraft returns more
24 often. It only would spray maybe 16 hectares at a shot
25 as opposed to the budworm, one aircraft doing the same

1 budworm would probably do about 300 or 400 hectares.

2 It is one o'clock right now if...

3 THE CHAIRMAN: Okay. We will take a
4 break for 10 minutes.

5 ---Recess taken at 1:00 p.m.

6 ---On resuming at 1:10 p.m.

7 THE CHAIRMAN: Ladies and gentlemen, we
8 have decided because there's another section of
9 evidence to go to be addressed at the end of the
10 photographs we feel, and the Ministry has requested,
11 that perhaps we adjourn at this point in time and we
12 are going to be commencing next Wednesday at 9:00 a.m.
13 We will pick up at that point with the rest of the
14 photographs and then finish off the evidence of both
15 Mr. Iskra and Mr. Nicholson at that time.

16 So we will adjourn now until Wednesday at
17 nine and that means everybody, pretty well I suppose,
18 has to come in Tuesday night.

19 Thank you.

20 ---Whereupon the hearing adjourned at 1:12 p.m., to be
21 reconvened on Wednesday, June 14th, 1989, commencing
at 9:00 a.m.

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